THE NEW-YORK
JOURNAL OF MEDICINE

FOR MAY, 1855.

PART FIRST.

ORIGINAL COMMUNICATIONS.

ART I.—*Remarks on the Military Hospitals of Vera Cruz, and the Diseases admitted in* 1853–4, *especially Yellow Fever and Vomito.* By Dr. GABOR NAPHEGYI, Prof. of Medicine and Surgery, and Director of one of the Medical Departments of the Military Hospital, Vera Cruz.

FROM the different reports which have come to my knowledge through the newspapers of the United States, I notice that the yellow fever has, during the year, made its appearance in some parts of that country with far more virulence than ever; and that the number of victims was greater than in many previous years. From private letters received here, I have also learned that medical men, of various sanitary societies, have united in contributing each his individual observations made in his own practice, in order to discover, if possible, the means by which the progress of the yellow fever—that fearful destroyer of human life—may be stayed.

My situation as Professor of Medicine and Surgery, and Director of one of the Medical Departments in the Military Hospital of this place—my own observations in practice, and those of some of my able colleagues—have excited in me the desire to prepare a paper, containing all the different obser-

vations worthy of notice; and I shall feel most agreeably repaid for my trouble if they become in any manner serviceable, or if they only, in the furthest degree, contribute to throw light upon the obscure and still doubtful cause of the yellow fever.

But before entering into any scientific and particular description of the disease itself, I will introduce to the reader's notice, the establishment in which these observations were made.

During the period of one year, I had to visit the hospital regularly twice daily—sometimes also three times—and administer medical aid to never less than one hundred patients, while the hospital itself never contained less than four hundred sick persons.

Our establishment is divided into four departments, viz.: Sala de San Pedro, which contains all the surgical cases; Sala de San Martin, and Sala de San Jose—two medical departments; and Sala de San Lazaro, containing all the State and military prisoners. These apartments, or saloons, are each about one hundred and eighty feet long, sixty feet high, and twenty-one feet wide, and are clean, airy, and spacious.

At the head of each department is a physician, in the grade of a commander of battalion; another, not graduated, is his adjutant, in the military grade of captain, who never leaves the hospital, and whose duty it is to make observations during the day, and report them, at the visiting hour, to the head physician. Besides those already mentioned, there are a first and second practitioner, (a topikero,) and first and second apprentice, who have to dispense the medicines, and a chief of the saloon, who has the charge of distributing the provisions, and giving clean bed-clothing as often as it is needed. Besides these eight persons, there are in every saloon eight nurses, who have constantly to walk from bed to bed, and render all possible assistance to the sick and suffering.

The hospital has its own apothecary establishment, at-

tended by a regularly graduated druggist, a man who for many years was owner of a drug store in one of the largest cities in Europe, and is, in all probability, the first chemist in the country. Two other *practicants* are given to his assistance, so that every possible chemical preparation required may there be produced.

At the head of this establishment, as well as of all the others belonging to the department of Vera Cruz, stands one of the most able and talented physicians and practitioners, Inspector General, Doctor in Medicine and Surgery, Don Adolfo Hegewish, a German by birth, but more than twenty-six years a citizen of this country.

To his comprehensive mind, his long experience in practice—to his talents, energy and constant activity, and the merited appreciation in which he is held by His S. H. the President; and to the liberal and benevolent mind of the present head of the Republic—who exerts all means to diminish the sufferings of the poor and sick soldiers—to them both, I say, must be ascribed the present favorable condition of this military hospital. I doubt if there exists in the whole Republic, or even on the Continent of America, a similar institution which is kept more cleanly, and better supplied with all necessaries for the comfort of the sick—medical assistance, medicines, nourishment, clothing, bedding, etc., etc.—than the military hospital of Vera Cruz. The same remark I have often heard made by visitors from foreign parts. The able Inspector, Don Adolfo Hegewish has, through his practical knowledge, proven how many of those diseases which generally become naturalized in hospitals can, by proper and right management, be up-rooted and totally banished; and how even the most fearful of epidemic diseases, when once raging in those establishments, can be combated, and forced to lose in a considerable degree its frightful appearance.

The objects of the present Medical Director, in his wise management, are two-fold: 1st. To supply the suffering human being with all possible medical assistance, and to

render his practical knowledge useful in assisting the young practitioner, who has to combat the different diseases of those patients under his charge. 2d. To have the young practitioner profit by experience, and gather knowledge and information by daily observations; and to this end, every one of the physicians in whose charge one of the departments is placed, is obliged to keep a medical diary, in which he has to enter the observations made on every patient, from the hour that he enters to the hour that he leaves the establishment, either restored to health, or borne to the eternal resting place—the grave. When the case terminates fatally, the cadaver, in the presence of all the physicians of the hospital, and under the immediate inspection of the Director himself, has to be dissected; and the physician, who had the deceased in charge, has to relate the whole history of the case, from the hour that he took the patient in his charge until the hour that he expired—the symptoms, changes which occurred during the period of the disease, treatment, etc.

The autopsy, in connection with the verbal report of the physician, is the immediate proof in how far the diagnosis was right or wrong, where the mistake occurred, if there was any other disease than that assigned, or what caused death, etc.

These kinds of dissections naturally afford sufficient matter or the observant and attentive student, and the hospital thus becomes a practical school, in which the young military physician makes daily progress, and gathers hourly more information than many a physician in several months' private practice. These remarks lead me to assert, that during an engagement of one year, I witnessed, myself, over three hundred dissections, of which, at least, sixty were made by myself.

But among all the different diseases to which the human system is subject, and which in the course of one year have been treated in this establishment, to none have I more particularly and exclusively directed my attention and

study, than to that of the yellow fever and vomito. From the first day of the month of July, 1853, to the last day of the month of September, 1854, there have been under medical treatment in the military hospital of this place, nine thousand five hundred and eighty-seven sick, of which number eight hundred and thirty died.

The mortality this year has been far less than that of the previous one, for the following reasons. The establishment, under the presidentship of Arista, was neglected; the poor and helpless soldier, when he became sick, and entered the hospital, was not laid in a bed, but on the naked, cold and damp ground. There were no bed and bed-clothes, and the sick, in consequence, were exposed naked on the floor. That this circumstance contributed materially to advance the progress of the disease, it is natural to conclude. The former physician in charge of the hospital neglected his duty, or regarded it only as an office which contributed to his pecuniary interest. Neglect and abandonment were visible on all sides. The government of Arista paid little attention to the condition of the soldier, when once sick and helpless. The selection of good physicians for military hospitals, and a careful inquiry into the manner in which they discharge their duties and obligations, were matters of no importance; and thus the establishment called a hospital, where the sick sought for help, was nothing else than a den where pestilence guarded its entrance, and vermin covered the reeking walls —where human beings were placed only to become the more sure victims of death, from the respiration of a foul air, capable of corrupting and poisoning the most healthy constitution.

The present Administration, immediately after taking the reins of government in its hands, directed its attention to providing a home for the suffering soldier. This duty was given in charge of the above-named gentleman; and, from the moment that he entered upon his task, his efforts have been unremitting to eradicate those diseases which generally, when no attention is paid to the condition of public charities,

colonize themselves in public infirmaries and hospitals, and, once rooted, produce the most fearful epidemics.

The mortality in the military hospital of this place diminished not only gradually but most remarkably, and the more the improvement advanced, and the more attention was paid to the condition of the hospital and the care of the sick, the less frequent did deaths occur. The extracts which I here annex will prove the truth and force of the above remarks.

In the month of July, 1853, there were under treatment 518 patients, among whom were only 18 cases of vomito, and 87 deaths; while in the same month of this year, there there were 805 sick, 165 cases of vomito, and only 23 deaths. The total entry and deaths from the month of June, 1853, to the end of September, 1854, were as follows:

Month.	Entry.	Exit.	Death.	Month.	Entry.	Exit.	Death.
1853.				1854.			
June,.....	319	107	76	January,.....	583	241	25
July,.....	344	164	87	February,.....	587	263	21
August,.....	675	250	72	March,.....	769	304	34
September,.....	741	233	101	April,.....	768	296	48
October,.....	640	160	96	May,.....	925	376	69
November,.....	524	196	37	June,.....	872	263	75
December,.....	508	189	14	July,.....	590	215	23
				August,.....	653	260	29
				September,....	833	250	26.

The different diseases which were treated, and which are more or less frequently admitted, are as follows: the black vomit, yellow fever, (I make a difference between the former and the latter,) typhus and typhoid fever, pernicious, intermittent and bilious fever, scarlatina and small-pox, inflammation of the lungs, bronchitis, virulent diarrhœa, and dysentery, occasional cases of congestion of the brain, syphilis, etc.

From the month of March to the first of October, I had under my treatment 1202 patients. Among them were of—

Vomito, . . . 132—80 in the month of May only.
Dysentery, . . . 85.
Intermittent fever, . 206—59 in the month of September.

Pneumonia,	68—18 in the month of March.
Diarrhœa,	59.
Pernicious fever,	13.
Typhus fever,	75.
Bilious fever	33.
Syphilis,	54.
Consumption,	32

These different diseases have certain periods in which they have appeared like an epidemic, and many of them, especially those which are ranged in the class of fevers, under a peculiar and different character. In the month of February, pulmonic diseases are so frequent, that it can be asserted with certainty that they amounted to at least twenty or more per cent. of those who were treated in the hospital. The months of April and May are the months of the vomito, while in the months of August and September intermittent fevers have their period; and it is frequently the case that those who have had the vomito in the month of May or June, have generally an attack of the intermittent fever in the above-named months. Dysentery has no fixed period, and is interesting only in the difference in its character, at different periods.*

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*I may here remark, that dysentery in a climate like that of Vera Cruz is a most dangerous disease, and the attending physician often finds dysentery a more difficult disease to manage than vomito. My usual treatment in the year 1853 was the following:—

℞.		or ℞.	
Sub. Nitrat. Bismuth,	ʒii.	Ipecacuanhæ	gran. vi.
Opii. puri	gran. ii.	Opii Crudi.	gran. ii.
Bicarb. Sod.	ʒii.	Pulv. Rad. Althea,	ʒi.
		Cinam.	℈ii.
M. divid. in four parts.		*M. divid. in twenty parts.*	

With this foregoing powder I administered the following injections.

℞.

Amylum,	℥ij,
Argent. Nitrit.	gran. vi.
Laud. ex Sydenh.	ʒi.
Mucilag. Gum Arab.	℥v.

M. Sig. for one injection.

From observations made in the department of which I have charge, all the above-named diseases may be quite certainly arranged in the following classification, viz.:

Vomito in the summer months,	20	per cent.
Yellow fever,	5	" "
Inflammation of the lungs,	6	" "
Dysentery,	15	" "
Intermittent fever,	30	" "
Pernicious, "	5	" "
Brain (Fievre typhoidea),	3	" "
Typhoid,	6	" "
Typhus,	5	" "

Observation leads me to believe, that the atmosphere is the great influential cause of the "black vomit." The part of the animal body to which I would assign the seat of this disease is the blood, and its great supporter is the atmosphere. The human being belongs to that class of animals called warm-blooded. Every forcible loss of blood weakens the production of heat in the body, and every part in which the circulation is interrupted becomes cold.

The animal heat has a great influence upon those epidemic

In more difficult cases, I gave the following:

℞.

Creosot		℥.
Sulph. Morph.	gran.	ii.
Pulv. Rad. Althea.		℈iss.

M. Sig. in six parts.

But the best result obtained was the following:

℞.

Acidum Sulph. medicinal,		ʒii.
Tinct. Opii.	gut.	xl.
Syrup simpl.		ʒiss.
Aqua simpl.		℥vi.

M. Sig. to take in six parts after every operation, with the following injections:

℞.

Mucilag. Gum Arab.	℥v.
Acid Tanini,	℈iss.
Tinct. Opii.	ʒi.
Pulv. Carbon vegetal.	ʒi.

diseases which rage only in the southern climates. Animal heat is a result of the combination of those two constantly acting elements of our bodies, carbon and oxygen. The first is derived by the process of digestion from the food received into the body; the latter by inhaling the oxygen which is contained in the atmospheric air. These two gases, by uniting in certain proportions, produce a constant combustion, and are the sole causes of animal heat.

Animal heat is then exclusively the great supporter of animal life, and, as before mentioned, the great motive-power of the blood. In its production, only a certain quantity of food which yields the carbon, and only a certain quantity of oxygen, are required to support the circulation and maintain the animal heat in its proper state and limits; but when more oxygen is received than is necessary for the combustion of the carbon, instantly the regular course is interrupted, and an immediate change in the body is produced.

Nor at all times does the animal body receive the required and necessary quantity of oxygen; for as this gas is only taken out of the atmosphere, it is readily perceived why the different and sudden changes of the atmosphere and climate produce so many alterations and diseases.

The atmospheric air is one of the most powerful agents. Through its elasticity, it acts like a tonic bath to the surface of the body; it absorbs all the bodily evaporations which without its assistance would suffocate us, and is the most proper conductor by which the superabundance of animal heat is removed. In the atmospheric air the electric phenomena are exhibited—that mighty influence upon the animal system which is a still undiscovered and unknown power. Without this powerful agent, one of the principal functions of our economy, the perspiration, would not be possible.

And in this function it acts, not in the mechanical way, but receives and gives to the blood that mixture, through which only the animal and chemical process can be supported, and the action of the *vis vitæ* maintained in all organs. Through this latter mighty and powerful agent, the atmos-

phere maintains the existence of animal life. It produces health and disease, and, in proportion to its change, force, etc., is the class of diseases changed. A humid air weakens the tone of the harder tissues, and increases the activity of the vital power. For instance: owing to a humid and cold air, in moist autumns, in winters without frost, diseases of a different kind prevail. This condition of the atmosphere produces generally catarrhal diseases, local inflammations, gout, etc.

Heat, on the contrary, increases the activity and irritability of the capillary system, and tends powerfully to promote in the different organs the chemical and vital changes. Therefore, in hot climates, we find those diseases which are influenced by the cause just mentioned prevailing with more virulence, running a more rapid course, and of a more dangerous character, than in the temperate latitudes. May not experiments, based upon these facts, demonstrate in how far the atmosphere is a great, if not the first destructive agent of the healthy constitution, and gives rise to a disease like the vomito?

In Vera Cruz the vomito generally commences with the beginning of the summer months; and this is another evidence that the atmosphere acts as a principal agent in its production. This is explained by the fact, that in these months we have generally the winds from the south and west, prevailing during this entire period; while in the autumn and winter months we have the north wind. The former are therefore the unhealthy, and the latter the healthy winds. And this is not only the case here, but it seems to be a law prevailing over the whole globe. The Harmattan in the interior of Africa have a healthy influence; and when these winds begin to prevail, all the existing epidemic diseases cease, and the sick are again restored to health. Opposed to this wind is the Sirocco of the Italians, or the Samum in the desert between Bassra and Bagdad, which is very dangerous to the Arabians.

Our north winds produce generally inflammation of the

lungs, intermittent fevers, rheumatism, etc., while the warm and moist south winds produce generally typhoid fever, and, in the fatal summer months, the vomito. The sudden change to a cold north wind, as it frequently occurs following a south wind, fills often in a single day our establishment with patients complaining mostly of catarrhal diseases. So far in regard to my observations upon the atmosphere, and its influence upon the health, and more particularly upon the appearance of the vomito.

But in concluding this remark on the influence of the atmosphere, I will illustrate it with an example. All foreigners, as well as natives of the interior of the country, in coming to this place in one of the summer months, are almost without exception attacked by the vomito. The reason of this may be easily understood. Vera Cruz is situated on the level of the sea, in the degree 19 of latitude, and 98 longitude; it belongs naturally to the hot climate of the tropical zones. Jalapa, situated at only a distance of twenty-five leagues, is four thousand three hundred and thirty-five feet above the level of the sea, and is one of the most healthy localities in the republic.

Supposing now a resident of Jalapa comes to Vera Cruz. Let us examine what effect the change of climate will have upon him.

The change of temperature is so great that it must have an immediate effect upon his system. The heat is oppressive, he perspires in abundance, experiences a sense of languor in all his muscular exertions, his nights are sleepless, and the body deprived of its natural repose. Though no disease has yet attacked him, he is an altered man. Without making any change in his diet, he takes the same food as the natives —food too strong, too nutritive for the climate. He is deprived of his free and refreshing mountain air, and is on the contrary exposed to the hot and unhealthy southern winds. How can it therefore be expected that such an individual will remain healthy, with all these physical changes in his system?

The blood then, and the capillary and vascular system are the first to suffer on the appearance of the vomito. I must not omit to remark, also, that on the different constitutions of different individuals depends, in a great measure, the progress of the case, and even the attack, for different constitutions are unequally affected by irritation. In some cases I was led to believe that the first feverish irritation commences in the skin, and through the capillary system is conducted by the vascular system to the whole body.

The foregoing remarks and observations make it unnecessary to explain that, as I assign change of climate, the influence of the atmosphere, and the change of the quantity and quality of the blood, as the primary causes of the vomito, this disease is not, like some other epidemic or endemic disease, a local, but on the contrary a general disease of the system.

Symptoms of Vomito.—The first symptoms which accompany the vomito are principally and first of all, *the activity and vivacity of the pulse.* The cause of the feverish pulse is the high state of irritability of the arteries and of the heart.

To enter more particularly into the examination of the feverish pulse in the vomito, I made my observation according to the standard of Falconer.

The normal state of the pulse between the thirtieth and fortieth years of life, in the female, is generally eighty-four, but in the male seventy-five only in a minute, although the mode of life, temperature, activity of the body and of the mind, and the time of day, etc., produce a great change in different individuals. With this standard I compared the state of the patient in vomito. The pulse at first rises gradually. If in its natural state it is seventy-five, in the first six hours of the attack it beats from eighty-five to ninety in a minute. In the next six hours it reaches one hundred to one hundred and ten. In the first twenty-four hours, I have observed patients with a pulse ranging from one hundred and thirty to one hundred and forty-five; and cases are not un-

frequently met with where there are one hundred and sixty pulsations per minute.

To these symptoms of the vomito belong also others which take their origin in the nerves, and which generally appear in all fevers. To this source must be attributed frequent yawning, pain in the extremities, foamication, an unpleasant painful sensation in the spine and vertebral column, headache, dullness, etc.

In the vomito, the blood drawn from a vein is often deprived of its coagulability and remains liquid, and the blood-water, or serum, takes a reddish appearance. Often the extracted blood has an uncommonly obscure, and sometimes again a light reddish color. Especially remarkable is the surface of the extracted blood in the vomito, its appearance being similar to that of fevers with the character of the synocha, or inflammation.

To the changes under which all the liquids of the human body, in the disease of which I treat, suffer, belongs also the urine. With the commencement of the vomito the urine is pale and without a sediment; but as the disease advances, the color of the urine becomes more obscure, and the sediment forms only a considerable time after it is separated from the body.

But sooner or later, the urine undergoes a change; it loses its reddish color, and assumes by degrees a pale appearance. The urine, however, which was passed in the highest stage of the disease, has a red sediment, and retains its former color without change.

The more the disease becomes complicated, the more abundant is the sediment; but toward its termination the sediment diminishes, and disappears altogether.

The quantity of the salts of the urine in the vomito depends on the high, irritated, or low state of the fever. In the beginning of the disease, that is to say, in its first stage, the phosphates are in small quantity, or altogether absent, while the urates are never present until the fever has advanced.

I have observed, also, that both the phosphates and urates

were present in the urine when the vomito, as is often the case in the months of September and October, takes the character of the intermittent or remittent types.

After the crisis, which is generally the fifth or the seventh day, both the phosphates and urates diminish gradually in their proportions, and exist then as in the normal state of health.

Treatment.—In regard to the treatment of vomito, it is merely necessary to indicate the general method by which it was successfully treated in our hospital. It is as follows: First, Extraction of the blood; second, Purgatives; third, Artificial perspiration; and lastly, Artificial irritation of the skin.

Art. II.—*Ulcers over the Patella causing Necrosis, and followed by Suppurative Inflammation of the Knee-Joint.* By John O. Stone, M. D., late Surgeon to Bellevue Hospital, N. Y.

Messrs. Editors.—In the September number of your Journal for 1854, among the "Amputations of the Lower Extremities at Bellevue Hospital," I mentioned two cases, in which ulceration over the patella led to necrosis of the patella, to inflammation and suppuration of the joint, and finally to amputation of the thigh, for the purpose of saving life. From the experience then acquired, I stated that we were authorized to look with suspicion in cases of ulcers so situated, and consequently to be guarded in our prognosis.

Below I have recorded a new case, the *third* one in which ulceration over the patella was followed by necrosis of this bone. In this case, a slight accident subsequently caused a compound fracture of the patella, freely laying open the whole joint, but which fortunately terminated in recovery without a resort to amputation.

These three cases of an ulcer thus situated, and leading to such grave consequences, must, as it seems to me, be rare in any single person's experience. They are novel and extremely valuable, for they teach a lesson which cannot be

learned from any work on Surgery. For these reasons I am anxious to call attention to them, and shall feel obliged if you can find room in your Journal for this publication.

The case reported below, beside being valuable for the points already alluded to, is remarkable for showing that extreme laceration of the knee-joint does not necessarily require amputation. No constitutional symptoms, not even an acceleration of the pulse, followed the accident. This absence of bad symptoms is to be attributed to the size of the wound, which allowed the pus to escape readily as soon as formed. If the wound had been a narrow one, we should undoubtedly have had excessive pain and fever, which would probably, in the end, have destroyed life or required amputation.

Since the question of freely opening suppurating joints is now attracting much attention, any case which confirms or contradicts the practice is deserving of record. I need not add that my opinion is in favor of the new mode of treatment. Truly yours,

John O. Stone, M.D.

30 Waverley Place.

Case—Ulcer over Patella—Necrosis and Fracture of the Patella—Extensive Laceration of the Knee-Joint—Recovery.

Oct. 11th, 1854. Mrs. R., aged 30 years, was, about six months ago, a patient at Bellevue Hospital, for an ulcer over the patella. This ulcer did not heal, but extended to the patella, and exposed it to the air. The limb was kept extended upon a straight splint, and she was not allowed to leave her bed. She was pregnant, and on this account decided to leave the hospital in order to be confined at home. She was warned of the dangers that might arise to the joint from neglect or carelessness, and was informed, that if the knee-joint should become inflamed, that her life would be endangered, and that she might be obliged to have the limb amputated. She left the hospital with the injunction to send for me in case the knee should become affected.

In the latter part of August she sent for me to come and see her at her residence. The patella was found broken, and the integuments lacerated transversely from one side of the joint to the other, and the joint laid freely open, so that I could introduce my finger, and feel the heads of the femur and tibia.

Her history since she had left the hospital was as follows: She had continued to attend to her household affairs until the 12th of August, although a piece of bone of the size of the tip of the finger had separated and come away from the patella. At the above date, on leaning out of the window to shut the blinds, her foot slipped, the leg flew backward, and she fell to the floor; the knee was torn and the patella broken, and she could not stand upon the limb; on the following night, i. e., on the 13th of August, she was taken in labor, and delivered prematurely. She had never suffered much pain, and now the edges of the wound are covered with luxurious granulations. She has not, and never has had any constitutional fever.

I put her upon quinine and porter, with nourishing diet, and enveloped the knee in a gutta-percha splint, and she continued to nurse her child. Early in September, finding that she was destitute of all comforts, from the neglect and desertion of her husband, I persuaded her to enter Bellevue Hospital again. She entered the hospital, and the whole wound healed without a bad symptom, with the exception of a small portion of the integuments, when she again returned to her home, and walked thence to my office, fully the distance of half a mile, using a cane only.

Jan. 25th, 1855.—She sent for me to visit her. She was attending to her domestic affairs, and depending for her support upon the charity of her neighbors. The neglect and ill treatment of her husband had rendered her careless and desperate, and she had acquired the habit of intoxication. She had gained flesh and strength, and walked without a cane. In one of her fits of intoxication she had knocked her knee, and had caused a new ulceration of the integu-

ments. The gutta-percha splint was still worn. The wound into the joint was perfectly healed. She was destitute, and I sent her to the hospital again.

March 10th.—The patient has, I am informed, now left the hospital perfectly recovered, and, what is remarkable, the joint was not anchylased.

ART. III.—*An Inquiry into the Nature of the Anomalous Affection known in the United States by the appellation of "The Nursing Sore Mouth," or "Puerperal Anæmia."** By M. L. KNAPP, M. D., late Professor of Materia Medica, etc., etc.

I. Present State of Medical Knowledge.—Views of Correspondents.—Abstract of Literature.—The Writer's Views of the Nature of the Affection.

THE term Nursing Sore Mouth is so well understood to mean a peculiar form of disease to which suckling women are subject, that its adoption, though it be popular rather than professional, cannot lead to any mistake. There may be some practitioners who have never encountered this disease at the bed-side, and possibly those who have never heard of it; yet there are numerous physicians who have met with it and found it a very serious and obstinate affection. The silence in the main of standard or systematic authors on the subject; the omission in the arrangements of the best nosologists of any affection of the mouth peculiar to lying-in women characterized by the phenomena that are manifested in this complaint; and the testimony of the Journals, nevertheless, that such an affection does exist, is often met with, and is greatly on the increase in some localities; render it, most decidedly, a proper subject of inquiry, particularly in the absence of any clear or satisfactory views from those under whose observation it has more frequently fallen, as to its nature, pathology, and rational method of cure. To deny that a peculiar, lingering form of disease, often of very grave sever-

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* The researches made by the writer in preparing this Essay during the winter of 1853—4, led to the investigations into the Cause of Cholera which were published in the January number of this Journal.

ity, characterized by anæmia, debility, and other phenomena of which soreness of the mouth constitutes a prominent local symptom, now and then attacks women in the state of lactation, and persists, sometimes, in spite of all the remedial measures brought to bear upon the case, finally either proving fatal or terminating in a slow and gradual recovery incident to circumstances, as the removal of the infant from the breast, change of season, etc., rather than the administration of medicines, would be to shut our eyes to facts and experience. The history of hundreds of such cases is annually unwritten, willingly oblivionized among the unrecorded transactions of groping practice: and yet these cases are not wholly lost, for they reach us from the nursery as the reminiscences of many a delicate mother's past sufferings, and forebodings of their re-occurrence, constituting some of the oral literature of this dreaded affection. There are few practitioners, we opine, who have altogether escaped these popular traditions of the Nursing Sore Mouth affection.

The recorded literature of this disease is made up of the brief articles on this subject that have from time to time appeared in the medical Journals. Some of these are mere notices that such an affection has been met with, accompanied with the recommendation of a favorite remedy, perhaps, while others contain well-marked and well-drawn-up cases of the disease. We propose as a starting point in our inquiry to canvass what is known and what has been published on the subject, so far as we may be able to reach the files of the Journals. It is probable an article may here and there be overlooked, but sufficient testimony will appear to establish very clearly the grave character of the malady; that it is nowhere understood, every where treated empirically; and that it has hitherto failed to receive such careful investigation at the hands of any member of the profession as to settle the question of its pathology and treatment. Prior to glancing into the Journals, however, we will offer the original views of our correspondents, elicited by the following circular, two hundred and fifty copies of which were distributed to lead-

ing practitioners of the United States. We will not marvel that only three medical gentlemen have responded. These three contributions on the subject, however, are valuable. They establish the grave character of the malady, the want of any exact knowledge of its true character, and the further interesting facts that it has puzzled, perplexed and engaged the attention of the profession in sundry parts, and that it is looked upon as a subject of sufficient general interest to demand a searching inquiry. Our acknowledgments are hereby tendered to the courteous gentlemen who kindly responded to the call.

Circular.—Cincinnati, Dec. 22, 1853.—DEAR SIR: My apology for trespassing on your time and attention is the following, to wit: I am instituting some inquiries into the nature and history of that anomalous affection known in the United States by the popular designation of "*Nursing Sore Mouth.*" Attention has been briefly called to this disease through some of the Journals as a form of "*puerperal anæmia.*"

Having encountered the disease in localities widely apart, and having conversed with physicians in different States who had met with it frequently; I am led to think that it occurs more or less in all the States and British Provinces, but more frequently by far in some localities than others. Although it is believed to occur thus extensively, and so frequently during some years that it may be said to be a not uncommon form of disease, still little is understood of it except empirically, and it is consequently treated with very variable results, the majority of well-marked cases proving obstinate, running a course of some months, and in many instances yielding only with a snail's pace, after the removal of the puny infant from the breast, which dernier resort seems to be a *sine qua non* in the recovery of inveterate cases.

Its literature, I think, is limited to a few fragmentary notices, that have appeared in the Journals within the last few years: nothing is said of this obstinate and sometimes fatal form of disease in our elaborate treatises on Practice and Diseases of Women.

Presuming that this anomalous and nondescript form of disease has come under your notice, and that you will feel an interest in contributing to its elucidation, I respectfully request you to call to mind your cases of "nursing sore mouth," and the impressions they have left on your mind, and, at your earliest convenience, to draw up and forward to me by mail your observations and experience on the subject. My object is to arrive at just conclusions by means of more extended data than my own observations afford. This appears to me to be a legitimate mode of investigating the subject, and the only practicable method perhaps, for the disease seems to shun the lying-in wards of hospitals (or we should have heard something of it), and to occur wholly in private practice.

Should I be so fortunate as to arrive at any practical deductions deemed of general interest to the profession, and worthy of publication, the condensed views or points of practical importance (and, if not too copious, the views in full) of my correspondents will also appear, that each may receive the award of merit due to his own observations. Allow me to add in this connection that it will give me pleasure to reciprocate the favor at any time you may call on me for a like civility.

Having made known my object and wishes in a general way, I now take leave to call your attention to a few points in detail I wish your answer to cover, which, for your more convenient reference, I have numbered.

1. Topography of your region of country, and how long settled; agriculture and products; state of horticulture and orcharding; general character of disease?

2. Number of years in practice; number of cases of nursing sore mouth met with; history, symptoms, treatment, duration, result, of one or two cases as types?

3. If death has resulted in any case, the mode or manner in which it took place?

4. The effect of the disease in the mother on the child; if the infant died, or was removed from the breast, the effect of a suppression of lactation on the progress of the case?

5. Whether cases have occurred more frequently in some years than others; if so, the character or constitution of those years as to temperature, snow, rains, frosts; whether the crops and fruits were blighted or short; season of its development?

6. Whether attacks have occurred oftener after first confinement than in subsequent ones?

7. Whether attacks have occurred oftener after very severe labors, flooding, or other prostrating accidents of delivery?

8. Whether you have known an attack follow abortion, or parturition where the infant was still-born, or was removed from the breast and lactation suppressed?

9. Whether the disease has ever to your knowledge made its incursion before delivery; and if so, the effect of parturition on the case?

10. Whether, within the range of your observation, other females than those in a pregnant, puerperal, or suckling state, have suffered an attack of this form of anæmia; and if so, whether concurrently in the same family where a nursing female was laboring under it?

11. Whether, according to your observation, it be a disease peculiar to women; or have you met with the same morbid diathesis and assemblage of symptoms in males, during years of the greater prevalence of this disease?

12. Whether you have noticed in seasons of the more frequent occurrence of this affection, a prevalent, morbid diathesis that seemed to aggravate and render more intractable the common forms of disease?

This covers all the points I wish to have categorically responded to; but any views of your own—any facts or deductions from your practical experience and observation, throwing light on the etiology, pathology, or treatment of this affection, will be thankfully received.

Dr. Ellsworth's Reply.—Hartford, Jan. 21, 1854.—DEAR SIR: Many duties have hitherto prevented an answer to your favor of the 22d December. Your letter was handed to a physician having more extensive practice than myself in the

department of midwifery, but as he insisted on my writing, you shall have all the information I possess: the questions shall be answered briefly, at least as many of them as it is in my power to answer

1. Hartford is partly built on the alluvial of the Connecticut River valley, but the county is mainly primitive. The farms are rich, highly cultivated, and possess good depth of soil. Diseases in our valley generally assume a typhoid type, and do not bear the lancet as well as in higher portions of the State, and my impression is that V. S. is not as well borne as some years since.

2. My present experience extends back only fifteen years. The disease under consideration is not of very frequent occurrence, though common enough to excite earnest desire for its amelioration. The treatment, symptoms, etc., have been discussed by our City Medical Society.

3. As a general thing patients have recovered, though weaning has occasionally been necessary to effect this. I have known no case of death from the disease alone.

9. I had a very severe case commencing nine weeks prior to labor; the patient had nearly died from the disease with a previous child, in which case also the complaint made its appearance prior to delivery. She recovered, and I think without removing the child.

The treatment is simple, consisting of good support by way of food, bark with lime-water, carb. ferri, carb. sodæ, and particularly porter. Almost every thing tonic is useful, but especially the articles mentioned.

The minutes of our Society present but little worth mentioning in addition, except a statement made by Dr. Miner that he knew a severe epidemic of it in Berkshire Co., a mountainous region in Massachusetts, in 1832, and another at Middletown, in Connecticut, in 1836. Dr. Sumner also stated that he found persons subject to this complaint more disposed to phthisis. He had known the disease occur as early as the fifth month of pregnancy. Local treatment does not appear to be particularly serviceable. Some of the

questions remain unanswered, because I must either give a negative answer or one of no particular service to you. Hoping what is recorded may be useful to you, I remain, yours, truly, P. W. ELLSWORTH.

Remarks.—Dr. Ellsworth's contribution establishes the fact very clearly that the disease in question is not confined to the period of lactation, for he observed its occurrence twice in the same female, and on both occasions it made its incursion before delivery. Dr. Sumner also had observed it as early as the fifth month of pregnancy. It is not, therefore, *caused* by the drain of lactation, as has been supposed. Dr. Ashwell, in considering the complaints developed by undue lactation, makes no mention of any malady similar to the nursing sore mouth affection. We thus establish one point in our investigation, viz.: that the disease is not an affection peculiar to *nursing* women.

Again: another fact of much importance is derived from Dr. Miner's statement in the discussion of the subject before the Hartford Medical Society, viz.: "that he knew a severe epidemic of it in Berkshire Co., Mass., in 1832, (the year of the cholera,) and another at Middletown, Ct., in 1836." The fact established is, the greater frequency of the disease in certain years, amounting to an epidemic in some localities. This accords precisely with our own observations; and if the constitution of those years, as to temperature, snow, rains, frosts, state of the crops and fruits had been given, as called for by our circular, very important deductions, we opine, might be drawn from the premises. In the absence of said particulars we must depend on our own knowledge in the matter.

The winter of 1831–32, was the coldest winter, according to our recollection, we have ever experienced. The harbor of Baltimore, where we then resided, was closed by ice about four months—the Chesapeake Bay was almost frozen across at Annapolis, a circumstance which was then stated in the public prints to have occurred but *once* since the settlement of Lord Baltimore's colony—the harbor of New York it was

conjectured might be closed by the ice that winter—we participated in a sleigh-ride, the thermometer at zero, in the month of April, 1832, and the snow well-nigh a foot deep. The Asiatic cholera swept over the United States in the summer of 1832, and what influence the very rigorous winter and retarded spring exerted upon the human constitution in the United States toward rendering it liable to attack, has never been inquired into. That the constitution of the seasons and state of the crops and fruits have very great influence over epidemics there can be no manner of doubt; and while our observations tally with those of Dr. Miner as to the occasional epidemic prevalence of nursing sore mouth, we can as emphatically declare that its epidemic manifestations occur *invariably* after cold winters and retarded springs, accompanied with a scarcity of vegetable supplies. The coinciding fact, therefore, of nursing sore mouth occurring in epidemic form, in Berkshire Co., Mass., a cold mountainous region, in 1832, after an uncommonly rigorous winter and a cold retarded spring, is another point made in our inquiry.

As to the epidemic of 1836 at Middletown, Ct., this is not quite so clear. We incline to the opinion that Dr. Miner is mistaken in the date, and that it occurred in 1835, the year of its epidemic occurrence in the West, complicated with other epidemics, as will more fully appear in our chapter on the topography of Illinois, where we discuss the metoric phenomena and constitution of these epidemic years.

In regard to the treatment given by Dr. Ellsworth, we wish particular note to be taken of the good support by way of food, porter as a drink, (full of carbonic acid,) and the preparations of *soda*, *lime*, *iron*, etc., recommended. There is application yet to be made of the principle before we have done, illustrative of the why and wherefore of the efficacy of these acids, salts, alkalies and tonics, combined with wholesome nutrition.

Dr. Hall's Reply.—Glasgow, Jan. 26, 1854.—DEAR SIR: Your circular letter bearing date Dec. 22, has been in my

possession several weeks, and would have received an earlier response but for the presence of other engagements. Upon its reception I bestowed upon it a careful perusal, and cannot refrain from expressing a hearty commendation of the enterprise you have embarked in, and, so far as any cöoperation upon my part may conduce to the results to which your investigations are directed, it is most cheerfully granted. In responding to your inquiries, I have to mention two circumstances which I very much regret should exist—in the first place, the instances of this anomalous affection have been limited; but more especially do I regret that my observations in reference to these cases have been without that systematic accuracy, in the absence of which, facts in a great degree become valueless as materials for etiological, pathological, or therapeutical generalization.

During the last three years, which embraces the period of my acquaintance with this, as a distinctive type of disease, I have, in some manner, been connected with the treatment of five or six well-marked instances of "puerperal anæmia," besides several cases of minor importance, in reference to which I have been casually consulted. The gravest case which has presented itself to my observation, occurred in the person of a lady who was a resident of Logan Co., in the southern part of this state, and who was at the time I saw her (Aug., 1853,) on a visit to her friends in this neighborhood. This was a very characteristic case. The subject, æt. about thirty-eight years, is habitually anæmic, strikingly deficient in the nutritive function, so much so as to present a very pallid, exhausted appearance, and the buccal affection has regularly recurred, in the early period of lactation, since the birth of her second child—having had six, I believe. The infant then at the breast was about four months old, and from the history of the case elicited from the attending physician and her friends, her general debility increased, and her health continuously declined to this period, when the symptoms had become extremely aggravated. She had been confined to her bed and utterly helpless for fourteen or

fifteen days when I first saw her—entire buccal membrane covered with aphthous inflammation, with numerous patches of small ulcers, several large ulcers occupying the edges and inferior surface of the tongue, and some isolated spots of ulceration on the inner surface of the lips, profuse salivation, (not mercurial,) much complaint of vitiated taste with anorexia, pulse 125, and very feeble, with a very low grade of febrile reaction of a regularly remitting type, muscular and nervous exhaustion complete, with extreme feebleness of circulation. So distinctly remitting was the accompanying fever, in this case, that it seemed so urgently to demand an anti-periodic, that such a measure was resorted to and met the indication very happily.

This imperfectly-descriptive history is equally applicable to two others, the most malignant cases of the disease, with the one described, of which I have any knowledge; and in both these instances the subjects were likewise non-residents of this (Barren) county. One, a young married lady of Gallatin, in Tennessee, came near sinking under a protracted attack, the onset of which dated with the establishment of lactation after the birth of her second child. The other subject of this vitiating infirmity is a resident of Louisville, and, as I have been informed by her sister, who resides in this place, like the first-named case, it has become so much a constitutional vice as to be habitual with each returning period of lactation. The two females last adverted to seem in a good degree to regain and retain their health and vigor throughout the menstrual cycle, but the health of the first is hopelessly dilapidated, though she is measurably free from the essential symptoms of "nursing sore mouth."

The remaining several instances of the affection, which have been presented to my notice, put on a milder form, yet sufficiently serious to become objects of regular medical attention; presenting in a marked manner the conditions of an impoverished circulation, a depraved state of the nutritive and assimilative functions, with the more specific local lesions stamped with a less or greater degree of distinctness, in accordance with the mildness or intensity of the attack.

As to therapeutical relations, I conceive that these are, to some extent at least, deducible from the manifest pathological features of the disease. I can but regard the diseased condition as constitutional, consisting mainly in a lesion of nutrition. It may become a question as to where the first link in the chain of morbid actions is to be riveted; but as for my own part, I have learned to regard a vitiated action of the organs of primary digestion as a primitive feature in this pathological state, and other symptoms and conditions as more secondary. The circulating medium certainly becomes greatly depreciated in normal elements, and to replace these constitutes a leading indication of treatment. How to accomplish this, or the principles upon which it is to be done, involves details and considerations not consistent with my present purpose to discuss. So far as concerns the lesion of the mucous lining of the mouth, I can regard this only or mainly as a local manifestation of a more general diseased disposition, and this consideration would lead us to attach but a secondary value to topical measures of treatment; this my experience fully verifies. I have derived manifest advantage from astringent washes, and even caustic solutions applied to the diseased membrane; but they are to be relied on as less important auxiliaries of a judiciously devised constitutional plan. One drachm of sulphite of soda to the ounce of water forms a valuable wash. The blood dyscrasia, which constitutes the peculiar diathesis of this affection, must be corrected by a set of measures addressed to the nutritive and assimilative functions,—a properly regulated but nutritious diet, exercise adapted to the strength of the patient, and attention to every means of promoting and maintaining the healthful functions of the skin. I have found the most satisfactory results to attend the persevering administration of quinine, chalybeates, the mineral acids, and cod-liver oil, with attention to the state of the secretions.

To speak with more especial reference as to the etiology of puerperal anæmia, I am inclined to discard the influence of

climate and locality in the causation of the disease, further than the agency they may exercise in lowering the tone of nutritive life. Thus they may become predisponent agencies; but unless there be an inherent defect of constitution, I should be disinclined to attach much consideration to their influence alone. One of the strongest predisposing causes is, a naturally delicate and enfeebled constitution, and whatever depressing influences may operate to foster and still further deprave this natural disposition to the establishment of the anæmic diathesis; nothing further is wanting to give to the disease its distinctive and characteristic development, but the withdrawal, from the already scanty maternal supplies, of such nutritive elements as answer the demands of gestation and lactation. I will suggest a circumstance in this connection: I have observed in a majority of cases falling under my notice, that the child is very prone to muguet during the existence of the other disease in the mother. How far may the vitiated materials of nutrition derived from the mother contribute to the development of muguet in the child?

I will now bring to a close this communication, already extended greatly beyond the contemplated limits when I sat down to write. It will afford me decided satisfaction, at all times, to reciprocate favors of this character, and as a beginning I would gladly have pointed out to me a more successful plan of treating malignant epidemic scarlatina, than experience and reading have, as yet, enabled me to arrive at. I am, most respectfully, yours, etc., J. P. HALL.

Remarks.—The points of particular interest in Dr. Hall's paper are, the kind of constitution most liable to this affection, viz.: feeble, delicate, breeding, and suckling women--its constitutional rather than local seat—its pathology in his judgment being a lesion of nutrition—its sporadic appearance in Kentucky and Tennessee—its very marked, grave, and chronic character—its low grade of remittent febrile exacerbations—the ulcerated condition of the mouth and tongue, attended with profuse salivation not mercurial—the impoverished

state of the blood the cause of the disease, and to supply the circulation with normal elements the chief indication in the treatment—and the observed fact that the infants at the breast, in the majority of cases, are also affected with sore mouth. In fine, this contribution comes to us with a freshness from the bed-side of observation in this disease that is exceedingly forcible and instructive, and much to our aid and assistance in these researches. When we come to sum up and offer our views of the nature of this affection, having first set forth all the testimony we can find on the subject, the attention of the careful reader will revert to these practical views of Dr. Hall.

Dr. Judkins' Reply.—Cincinnati, 4th Mo., 1854.—DEAR DOCTOR: Thy circular of inquiry relative to "nursing sore mouth," which thou wert so kind as to send me some weeks ago, I have taken the first favorable opportunity to answer.

In the early part of my practice, I do not now remember to have met with this affection. I often met with diseases, over forty years ago, affecting the mucous tissue resembling stomatitis; also an apthous condition in children in the same membrane.

Within the last twenty years, but more especially within the last ten years, my attention has been more particularly drawn to notice this adult female disease, for I do not remember ever seeing the disease in any other persons than adult women, and in these only while in the state of lactation.

Females of a lax fiber, thin in flesh, rather of anæmic appearance, are those generally whom I have been called upon to treat for nursing sore mouth. I have known some ladies so predisposed to the affection as never to go through a lactation without it, and others, with slight hygienic directions, to escape during the second and third lactations, and perhaps to the end of child-bearing; showing that a strong tendency or predisposition exists in some females to morbid derangements and ulcerations of the mucous linings of the primæ viæ. I say hygienic directions, by which I wish to be understood well-aired rooms for lying-in women; pretty

good diet after lactation is established; bathing the skin often over the region of the uterus, both anteriorly and posteriorly, with tepid water, and after which staying the muscles of the abdomen with a bandage; patients to be taken out after their infants are three weeks old, to ride in the fresh air when the weather is suitable; and to be allowed to receive the visits of affectionate friends at suitable times, etc.

In tracing the symptoms as they are developed in this disease, it has manifested itself as *sui generis*, and is confined in its locality, incipiently, to the mucous membrane of the primæ viæ. I am led to this conclusion from the symptoms only in the living subject, having never yet made a post-mortem examination to prove this position. There appear to be three stages in the regular phenomena of nursing sore mouth, viz.: irritation, inflammation, and ulceration. In addition to these there is (as in most idiopathic diseases) a forming or fixing condition in order to bring about the disease itself, and this is indicated by lassitude, debility, and coolness over the body. Shortly after the lady complains of heat and irritation in the mouth, with a preternatural secretion of saliva; then follow red spots on the sides of the tongue and mouth, which, in a few hours, sometimes terminate in ulcers; ragged ulcers of from half the size of a three-cent piece to that of a fifty-cent piece. Soon after things have developed themselves thus far, the lady complains of pain and tormina all through the bowels, indicating the same altered structure and ulceration in the primæ viæ throughout.

In the second stage fever is observable, and the irritation occasioned by the ulcerations through the track of the first passages keeps it up for some days, say two or three, unless mitigated by some remedy, yet in common incipient cases lactation is but little retarded; but if the disease is permitted to continue for a few weeks, general debility and loss of flesh follow, and the secretions become morbid and the milk fails. Generally speaking, from the time that the first irrita-

tion is observable below the pylorus, the bowels begin to act preternaturally, and the dejections are commonly of a thin, watery consistence, inclined to light color. I say generally, but there are some exceptions. I have seen cases where the bowels have been confined during the progress of treatment, except when moved by the administration of laxative medicines, but never without pain.

After the disease has been of two or three weeks' standing, by examining a recent alvine evacuation, we discover *floating floculi* in the chamber-vessel of a mucous appearance; this, taken in connection with some of the other symptoms, viz.: ulceration, heat, burning pain, etc., in such portions of the mucous tissue as can be seen, lead to the belief that there are ulcerations in the mucous linings of the bowels, nearly, if not entirely throughout the whole track, from which the mucous secretions became separated and found their way to sight.

If this state of morbid derangement continues for two or three months, the body becomes emaciated, hectic fever ensues, and, where there is a strumous diathesis existing, we will have tuberculosis developed, with cough, hemoptysis perhaps, and other fatal symptoms to close the scene.

I will now touch upon the important point in the treatment. Every intelligent physician, with whom I am acquainted, has his favorite prescriptions in this female affection; and as I have been called to prescribe for quite a number of patients, I will only notice what course I have adopted, hoping, that when my experience is added to that of others, something may be sifted out that will be of service. There are two prominent indications to be fulfilled in the treatment: in the first place, we must endeavor to correct the ulcerative process or heal the mucous tissues, and in the second, to restore the morbid secretions and disordered functions to a normal standard.

Unfortunately, the cases that have come under my care have mostly been chronic, and hectic symptoms more or less existed, with diarrhœa, tormina, general emaciation, restless

nights, suppressed lactation, etc., etc. I begin the treatment by giving bicarbonate of soda, in fifteen-grain doses, dissolved in a tumbler of water, three times a day, which soon corrects the *acid* and *acrid* secretions in the first passages; and, in order to avert diarrhœa, I combine about five drops of the tincture of opium with each dose; order the patient to be well bathed in tepid water, once in the twenty-four hours, when the exacerbations of febrile action are at the highest point; regulate the diet, and avoid such articles of fruits and vegetables as have a tendency to irritate the tender granulations with which they may come in contact, or may exert an unhealthy influence over assimilation, but at the same time enjoin a generous, or *good rich diet.* After a few days thus treated, I give the patient one of the following pills three times a day.

℞

Nitrate of silver, . .	gr. x.
Denarcotized opium, . .	gr. iv.
Gum camphor, . . .	gr. v.
Disulphate of quinine, .	ʒj.

M. f. pil. No. xxv.

As the symptoms vary and improve, I suspend in part or altogether the medicinal treatment, as would occur to any physician, watching the effect of remedies, and the turn and change of symptoms of the patient. Under this plan of treatment I have, but in one case for several years, been under the necessity of taking the child from the breast of its mother, though I am aware of the great assistance afforded thereby in the cure. Very respectfully, thy friend,

WILLIAM JUDKINS.

Remarks.—Our circular was sent to Dr. Judkins, understanding through some of his patients, whom he had treated for this affection, that he possessed skill in its treatment, and enjoyed some reputation for its successful management, beyond that of the generality of physicians. His success, it now appears, depends on the liberal use of *a salt of soda, tonics and astringents, with good food, and tepid ablutions daily;*

a course well calculated to promote, coax, urge, even *force*, the nutritive process. This practice appears very rational, certainly, and in the absence of a true pathology, and the real cause of the affection not known, must be regarded as happy. When we shall have unfolded the *essential nature* of this anomalous affection, the why and wherefore of the success of Dr. Judkins' practice will be clear.

The points of particular interest, then, in Dr. Judkins' paper are, the apparent increase of this affection of late years—delicate ladies its subjects—its liability to recur—good, rich diet a preventive—pain and tormina of the bowels always present in marked cases, together with a watery diarrhœa, and *white floculi floating in the dejections, as in cholera.* No other contributor to the literature of this affection, we believe, has taken notice of this last circumstance—a very important fact. Doubtless these floating floculi are cast-off patches or sloughs of the epithilium, the same as in cholera, and not mucous secretions, as Dr. Judkins supposes. The tendency to grave local lesions, and the development of tuberculosis, hemoptysis, etc., is another point of importance to be borne in mind in this very practical contribution.

Let us now consider the literature of this disease.

LITERATURE OF NURSING SORE MOUTH.

The main contributions upon this supposed new form of disease, are from Drs. Hale, Backus, Channing, Bell, Wood, Shanks, Taylor, Holt, Ware, McGugin and King, in the United States, who have described it as it appeared in the extreme eastern, western, northern and southern States. These contributors have described the affection from personal observation, with the exception of Drs. Wood and Bell of Philadelphia, who have given it place in their standard systems of practice as a new form of disease on the testimony of others, and chiefly Drs. Hale and Backus, who were the first to call attention to this anomalous affection through the Medical Journals—Dr. Hale's article having appeared in 1830, and that of Dr. Backus in 1841.

Beside the above-named American contributors to the

literature of this anomalous affection, we find that Dr. Marshall Hall, of London, wrote a treatise on a similar anomalous disease, in 1820, designated by the very indefinite appellation of "*a serious affection*," which, appearing to us the same as the nursing sore mouth of this country, we shall begin our synopsis by analysing.

Dr. Marshall Hall's Treatise.—A review of this may be seen in the London Medical and Physical Journal for July, 1820, with copious extracts,—our source of information. Dr. Hall appears to have encountered an epidemic of this affection in the early period of his career, and, without venturing an opinion as to what it was, wrote a treatise of ninety-six pages on it, entitling it, "*Cases of a serious affection chiefly occurring after delivery, miscarriage, etc., and of a similar affection unconnected with the puerperal state.*" The general character of the serious affection of Dr. Hall appears to us to be the same as that of puerperal anæmia, or the nursing sore mouth, since described in the Journals of this country—its victims are the same, and there is a striking similarity in the history and progress of the cases—the whole phenomena in fact, even to the mode of death. Dr. Hall's cases do not, perhaps, appear to have been characterized by as marked a tendency to ulceration of the mouth as the general run of cases described in this country, though, from the fact that those persons were among its frequent victims, who suffered from "aphthæ with irritable stomach," it is evident that sore mouth was a symptom generally in Dr. Hall's cases.

The causes of the affection Dr. Hall supposes to be, irritability and exhaustion following the shock, drain or fatigue of the system incident to parturition, abortion, or lactation.

The subjects of the disease are those exhausted by diarrhœa or other sickness previous to delivery; those of pale, icterode complexion, who had been anasarcous, or who had suffered from aphthæ with irritable stomach and bowels; those exhausted by repeated and prolonged uterine or other hemorrhage, or depletion for subduing inflammatory diseases; and the naturally delicate and feeble. He has seen it suddenly

developed after venesection, and also after full purgation. Anxiety, alarm, and disturbance of mind have seemed to cause it. The affection in some instances came on in the latter period of pregnancy. Sudden and unexpected death sometimes occurred after delivery, or even after blood-letting. By a removal of the exciting cause, as a prolonged menorrhagia or an exhausting lactation, the prominent or urgent symptoms frequently ceased. The affection sometimes proved fatal after a more or less urgent, protracted, and varied course; and in other cases there was long-continued indisposition. The doctor attempts to arrange his cases under six varieties, as follow: "1. The acute; 2. The more continued; 3. With general symptoms; 4. With some predominant local affection; 5. As the effect chiefly of intestinal irritation; or 6. Of hemorrhage. The greater number of cases, however, do not admit of being referred to any one of these divisions, distinctly or exclusively, but assume a mixed character." He arranges his account of the symptoms with reference to the regions of the body affected, as follows:

The head.—"Severe pain, beating and throbbing, rushing or cracking noises, vertigo on assuming the erect posture, intolerance of light and sound, wakefulness, starting during sleep, waking hurried and alarmed, faintness, feeling of sinking, of impending dissolution, overcome by noise, disturbance, and thinking even, and delirium.

"*The heart* is in different cases affected with palpitation, fluttering, irregular and feeble action; there are beating and throbbing of the carotids, and sometimes even of the abdominal aorta; great rapidity and sometimes irregularity of the pulse; faintness or fainting; urgent demand for the smelling-bottle, fresh air, fanning, bathing of the temples; feeling of impending dissolution; incapability of bearing the erect position; and sometimes early fainting from V. S.

"*The respiration* is affected in different cases with panting, sighing, heaving, gasping, moaning, blowing, catching, with urgent demand for fresh air. There is sometimes great and alarming oppression about the chest. There is in some cases an irritative cough.

"*The stomach* is liable to become affected with irritability, sickness, retching, vomiting, hiccough and eructation; the bowels with constipation or diarrhœa, pain, flatus, distension, etc.

Muscular system.—"There are very frequently urgent restlessness, tossing about and jactitation. In some cases various spasmodic affections have occurred.

"*The seats of pain* are usually the head, the side, the illiac region, the loins, the uterus, and the abdomen generally. The pain of the illiac region and of the abdomen are often attended with much tenderness."

Dr. Hall impresses the idea that this affection will never bear blood-letting, although the local affections often led the practitioner to believe inflammation present. He does not attempt to explain the nature and pathology of the affection. The broken down and debilitated are its victims, and the greater the weakness the greater the susceptibility. *Males are sometimes attacked with this complaint.* The indication in the treatment is to restore the vital energies.

Remarks.—It is very evident from Dr. Hall's account of this affection, its causes, its subjects, its very varied and grave constitutional symptoms, with complete prostration of the vital powers, while seeming grave local inflammations are apt to set in and mislead in the treatment, that the "serious affection" described by him in 1820, in the British Journals, is identical with the "nursing sore mouth" affection first described in the Journals of this country in 1830 by Dr. Hale; at least it appears so to us, and the anomalous character of the cases being such as to prevent Dr. Hall from naming the disease, is strong confirmation of this. The identity of the two affections being conceded, we here establish another point of great importance in our researches, viz., that *males are sometimes subjects of the complaint.* This accords with our experience, although the idea has never been hinted in the Journals of this country. We have repeatedly seen men and boys subjects of the complaint, and also girls, as well as suckling women. Hence we infer that pregnancy and lac-

tation are causes of the affection only so far as they tend to impair the general health by confinement or want of proper exercise in the open air, improper restrictions in diet, a gloomy state of mind, exhausting drains by hemorrhage, etc.

The special attention of the reader is invited, in these cases of Dr. Hall, to the prominent symptoms, viz. lassitude, sinking, fainting, icteric pallor and anæmia, pain and tenderness of the abdomen, diarrhœa or constipation, aphthous ulcers and other local lesions, hemorrhagic associations, protracted course, getting well when the exciting cause was removed, as an exhausting menorrhagia or lactation, fatal tendency, sudden mode of death after some shock, as parturition, etc. We wish the reader also to notice the sudden development of the disease sometimes after a shock, as blood-letting, catharsis, or merely from the emotional shock of fear. All these are very instructive illustrations.

Contributions of American Physicians.—As before observed, Drs. Hale and Backus appear to have been the first to describe this affection in the United States, and an analysis of their contributions might, very properly, take the lead; but we prefer to place the most accurate account of the disease that has met our view first in order, and therefore give the substance of

Dr. McGugin's Article.—This valuable contribution appeared in the *Western Medico-Chirurgical Journal*, published at Keokuk, Iowa, October, 1851, and is styled "*Stomatitis in Pregnancy and during Lactation.*" In the outset, the affection is stated to be the ulcerative sore mouth consequent upon and occurring during pregnancy and nursing, particularly described by Drs. Hale and Backus. The idea is entertained that it is a disease peculiar to this country, rare on the seaboard, more common elsewhere. The doctor had met with several cases in two years' practice at Keokuk—says its pathology is not understood, and why it appears in certain localities, and whether or not caused by miasm, not known to the profession. Thinks local causes only act feebly in its production, that the real cause is in the system, for that the

disease is relieved when the infant is removed from the breast—has found the scrofulous constitution most subject to it—thinks it arises from faulty nutrition, and that pregnancy, which favors excitement in the lymphatic system, somehow tends to develop it—that the glands of the mouth largely partake in the excitement, and in lax and strumous habits the feeble integrity of the tissues gives way to ulceration. Passing from the doctor's theories, we give his more valuable delineation of symptoms.

"The patient complains of burning heat, similar in sensation to that produced by hot fluids, when taken into the mouth. Food, when taken, even of the blandest kind, is swallowed with pain and difficulty, and that which is solid is masticated imperfectly and painfully. The lower lip is tumefied, and turns out and downward, and in the efforts to speak, the saliva, limpid and scalding, pours over it. There is pallor of the face, an anxious and painful expression of the countenance, and a crescentric dark circle below the eye. The pulse is small and frequent, the skin dry, and the mind irritable and despondent. The mucous lining of the mouth is highly vascular and livid in color, the tongue red and often swollen, and early in the attack small granular elevations may be seen along its edges and tip, and still more highly vascular than even the surrounding mucous membrane. These points are highly sensitive, and much suffering is produced when the tongue touches the teeth or jaw. Very soon these show yellow vesicles on their tops, and in a short time these burst, leaving an ulcerated tip or depression, and rapidly, under the ulcerative process, extend themselves over the surface. They now multiply in number, and may be found within the lip, under the tongue, within the cheeks, and in the fauces. Now the suffering is great, for the surfaces of these ulcers are most sensitively endowed. They may extend down the œsophagus into the stomach, throughout the intestinal tube, into the posterior nares, down the trachea, along the bronchiæ, and finally involve the lungs in an irreparably diseased condition."

Case.—"Mrs. W———, of scrofulous predisposition, and advanced to the seventh month of pregnancy, had been laboring under stomatitis for three weeks before advice was taken. The tongue, the lips, the cavity of the mouth and fauces, were thickly covered with ulcerated patches. From the difficulty of swallowing, it was also manifest that it had proceeded downward along the lining of the œsophagus, and it was just as evident that the mucous coat of the stomach was also seriously involved. There was much suffering on deep pressure in the epigastric region, and food was rejected immediately upon swallowing it. The symptoms pointed to a diseased condition of the cardiac orifice. There was at this time some constipation of the bowels. After a time, from a change in the voice, together with a sense of tightness of the part, and stiffness of the muscles of the neck, it was evident that the larynx and trachea were suffering also. There was slight cough, with a muco-sanguineous expectoration, and upon retiring to bed, the semi-recumbent posture was chosen to favor inspiration, in which position the head was thrown back. There was slight dullness upon percussion over the entire thoracic surface. There was feeble respiratory murmur, owing to the thickened walls of the larynx, aided, doubtless, by the preternatural smallness of the chest.

"She had now arrived at the eighth month of her pregnancy, the previous month having been spent in the foregoing developments. The symptoms now assumed a more grave character; the cough was constant and harassing; the sputa thick, tenacious and slightly sanguineous; wandering pains through the chest; respiration difficult at intervals; dullness over the entire thoracic surface, particularly manifest in the superior sternal and the right clavicular regions. There was bronchial respiration, but no vesicular murmur; irritability of the stomach so great as to reject food, drink or medicine. The dejections showed a large admixture of thick tenacious mucus, similar to that expectorated.

"About the middle of the eighth month the following were

the symptoms: There had been a large discharge of pus in coughing; pectoriloquy in right infra-clavicular region; the ulceration had extended to the posterior nares, followed by alarming epistaxis, doubtless from the destruction of a vessel in the progress of ulceration; the irritability of the stomach continues as before; colliquative diarrhœa and hectic fever; cough persistent; sputa purulent and muco-purulent.

"Her confinement, which was now close at hand, was looked forward to as an event which would close her sufferings. All the symptoms continued in an exalted form up to this period, when uterine contraction came on, and her labor was concluded in two hours from the first evidence of uterine effort; was easy, and followed by but little loss in discharges. She, however, began to sink rapidly, and in eight hours from the delivery of the child she died. The child was less than the average, but appeared healthy. In a few days, however, as I learned, it sank rapidly with similar symptoms to those of the mother.

"The treatment was such as would naturally suggest itself; but the irritability of the stomach opposed a serious difficulty to the prosecution of any treatment, or a fair trial of any remedial agents internally."

In commenting on this case, Dr. McGugin notes the rapid development and extent of the local lesions, particularly phthisis, which is ordinarily hushed in pregnancy, but here it was developed.

Where the disease comes on after delivery or during lactation, he says, "it is attended with prostration, and even before the attack there is a sense of sinking and depression." Thinks the drain upon the system in the secretion of milk favors the rapid development of the disease, and therefore the infant should be separated from the mother before she is permitted to sink into hopeless anæmia. Suggests that animal chemistry may, by analysis of the milk, yet throw light on the pathology of the disease. Illustrates the imminent hazard that sometimes presents—the mother laboring under this affection, and the infant in the critical period of

dentition—to wean may be death to the child, and no t to wean death to the mother. Such a case came under the doctor's care the summer previous, and caused him much anxiety, but he saved both mother and child. The cure of the mother was ascribed to hydriodate of potash, a nutritious diet of broths, and porter as a drink. Several subsequent cases, he says, yielded to the same course of treatment; one especially, where, in a prior attack, weaning the child had to be resorted to in order to save the mother. Dr. McGugin says he has no confidence in any other remedy. The hydriodate of potash in solution also recommended as a gargle, and iodine to be added where the ulcers are "dark and ill-conditioned." Cinchona, porter, nourishing jellies and soups, and warm saline baths. If these means fail, wean the child.

Remarks.—Dr. McGugin's description of the disease and case reported illustrate the symptoms, progress, fatal tendency and sudden mode of death after a shock to the system, so accurately, that nothing is wanting but the anatomical characters to render his contribution complete. To be sure he infers what, no doubt, an autopsy in the case would have revealed, viz.: ulcerations or lesions of the epithilium throughout the gastro-pulmonary branches of the mucous membrane—that is, in spots and patches. The sero-sanguineous salivation, alarming epistaxis, and development of tuberculosis, justify this conclusion.

We have witnessed several instances of *sudden and unexpected death* after delivery in this affection, as noticed by Dr. McGugin and Dr. Marshall Hall, and shall speak more at length of this feature of the disease in our analysis of cases. Suffice it that we invite especial attention to it in this connection, as also to the *hemorrhagic tendency* spoken of by Drs. McGugin and Hall. The reader should also bear in mind the *prostration and sinking*, spoken of by Dr. McGugin before the disease comes on—that is, before the mouth becomes sore. This is doubtless the "forming or fixing stage" of the affection spoken of by Dr. Judkins. The local lesions, then, are

secondary, according to these contributors, which accords with our experience. Here then we establish another important point in our researches, viz.: that the local lesions of the mouth, fauces, stomach and bowels, posterior nares, and bronchial membranes, are consequent upon the general or constitutional affection. One other symptom, or rather objective sign, noticed by Dr. McGugin, is worthy of special attention; it is the highly vascular and *livid color* of the mucous lining of the mouth, spoken of. The papillary blisters or yellow vesicles that form on the sides of the tongue, and spread to all parts of the mouth and fauces, stomach and bowels, etc., are spoken of by others, as are constipation and diarrhœa. We wish the reader also to take note that a *salt of potash* is Dr. McGugin's main remedy; not that he was the first to call attention to the efficacy of a salt of potash or soda in this disease, but because he bears testimony to this fact. In the dietary he prescribes, viz.: *nourishing jellies and soups*, aided by porter, cinchona and warm saline baths, he agrees well with other contributors. Calling attention to one other circumstance, viz.: the sinking and death of the infant "with similar symptoms to those of the mother," we will close our comments on this very instructive contribution.

The Contributions of Drs. Hale and Backus are made the basis of the descriptions of this affection to be found in *Stokes and Bell's Practice*, second edition, page 54; and also in *Wood's Practice*, third edition, vol. 1, page 500. Both of these standard authors, Bell and Wood, have taken it for granted that this is a new form of disease, without ever having seen it, or had an opportunity of investigating its character! Both reflect the opinions of Drs. Hale and Backus, that the disease is at first a local affection or ulceration of the mouth, extending by degrees to the fauces, stomach and bowels, and thus secondarily involving the constitution, and breaking down the general health; and both follow the dogma inculcated by these and most other contributors, that the disease is peculiar to suckling women, though it may possibly

occur in the latter months of pregnancy. According to these authors, Dr. Hale's first communication on the subject is to be found in the *Medical Communications of the Massachusetts Medical Society*, vol. v., 1830; and his second, in the *American Journal of the Medical Sciences*, April, 1842. Dr. Backus' article in the latter, January No., 1841. We have not seen the original contributions, but the substance of them, as set forth in the articles styled "*Stomatitis Nutricum*," by Dr. Bell; and "*Sore Mouth of Nursing Women*," by Dr. Wood, which are the sources of this analysis of Drs. Hale and Backus' views, and which for reasons that will be obvious shortly, we feel it to be particularly incumbent on us to carefully reflect.

According to Bell and Wood's works on Practice, then, the incursion of the disease is sometimes sudden, and the local affection of the mouth is characterized by loss of taste, scalding sensations, patches of painful pimples on the sides of the tongue and mouth, which after a time ulcerate, and produce very painful sores, with hard elevated edges, and an inflamed circle around them. The inflammation, as the disease progresses, extends over the mouth by means of successive crops or patches of these papillæ; the surfaces of the mouth become exquisitely tender; the taking of food and drinks causes much pain; and a copious salivation sets in. This *local* disease, as it is considered, is not at first attended by febrile symptoms, loss of appetite, or furred tongue, but on the contrary the appetite is good throughout the course of the disease, and the tongue is red and smooth; but if the disease be not arrested, ulceration extends to the fauces, œsophagus, stomach and bowels, and then great intestinal irritation and severe constitutional symptoms supervene, with diarrhœa, debility, emaciation, etc., which overwhelm the patient and often end in death. This gives a condensed outline of the symptoms as recorded in the standard works of Drs. Bell and Wood, professedly drawn from the contributions of Drs. Hale and Backus. Dr. Hale, it is stated, has seen considerable loss of the substance of the tongue by

sloughs; and Dr. Backus has noticed so sudden an attack that, "in three hours' time after seeing your patient in health, you may find her with a scalded tongue and fauces, and unable to converse or take food." [!]

The cause of the disease is ascribed to some unknown baneful influence, exerted on the system by nursing. [!]

The subjects are wholly women in the suckling condition; or if pregnant women are attacked, they are those who had had the disease previously while suckling, and had established a predisposition to it. It is very apt to recur in subsequent nursings if a woman has once had it.

The constitutions most liable to it are the leuco-phlegmatic and dyspeptic, which are habitually costive; but others, even the most robust, are sometimes its victims. It appears to be much more prevalent in some localities than others.

The prognosis is generally favorable, if the constitutional symptoms of exhaustion have not run too long; and it is chiefly where there is a predisposition to phthisis that alarm need be felt, and the child weaned. Notwithstanding the wasting and weakness of the mother, the secretion of milk holds out, and the child continues vigorous and healthy.

The treatment is rested mainly on tonics, laxatives, *lemon-juice and bicarbonate of potash* in effervescing draughts, *tartaric acid* in small beer, and porter, with nourishing diet; at least this is Dr. Hale's treatment, and very little value is attached by him to local treatment, Dr. Backus recommends chalybeates combined with laxatives. The nitrate of silver is recommended as a local application. Weaning the child is thought to be an effectual measure.

Remarks.—The above is a faithful abstract of the accounts given of this affection, by Drs. Bell and Wood, drawn from the contributions of Drs. Hale and Backus; and no one, we presume, will question the identity of the disease with that described by Drs. McGugin, J. P. Hall, Marshall Hall, Ellsworth, and Judkins. The several descriptions all comport in the main. There is nothing particularly important in the descriptions of the affection as drawn from Bell and Wood,

over and above that of others, on which we can rest a point, save in the treatment, viz.: that *lemon-juice*, *tartaric acid* and *a salt of potash* are effectual remedies.

To post up the several points made in our researches, by way of keeping the mind refreshed, we find we have made the following, viz.: 1. The nursing sore mouth is not an affection peculiar to nursing women. 2. It manifests itself epidemically after cold protracted winters. 3. Males are sometimes its subjects. 4. The local lesions are secondary. 5. The vegetable acids and salts of potash are effectual remedies. These points we think are clearly established, to say nothing of the balance of the testimony, all tending in the same direction, and, as we think, conclusively proving that this anomalous affection, which has been stumbled over by the profession in Europe and America for the last thirty years, is nothing more nor less than LAND SCURVY. This has been our conviction for many years, since 1835, when we first encountered it, and met it successfully with anti-scorbutics. In 1851 we reported sundry cases of it successfully treated on this plan, in the *New York Journal of Medicine*, and presumed it was only necessary to call attention to its *real and true nature* to have the matter fully appreciated. We there remarked as follows: "These cases are reported because of their practical bearing. Marvellous accounts of this nondescript disease, called 'nursing sore mouth,' appear from time to time in the journals; and why some one has not set its nature and pathology to rights, who is in the habit of contributing to, and fond of appearing in the journals, I am at a loss to understand." But it seems "we reckoned without our host," for Dr. Wood still adheres to opposite conclusions, which are being widely disseminated. He closes his article on "*Sore Mouth of Nursing Women*," with an allusion to our views as follows: "Dr. M. L. Knapp, formerly Professor of Materia Medica in the University of Iowa, considers this disease as essentially scorbutic; and has treated cases on this principle successfully, which have come under his notice; but the affection, as described by Drs. Hale

and Backus, has not the peculiar features of scurvy, and differs probably from that noticed by Dr, Knapp."

Now our object in elaborating this subject is to arrive at the truth. Dr. Wood is a prominent author, his opinions have deservedly much weight, and, as we are at issue on a question of fact, as to whether or not the affection described by Drs. Hale and Backus presents the peculiar features of scurvy, we invite a careful attention to the subject. If a scalded, drivelling sore mouth in female subjects, exhausted and prostrated by breeding and nursing, displaying increasing patches of ulceration of the mouth, tongue, fauces, and extending to the bowels and bringing on diarrhœa, profuse salivation and complete prostration of the system, development of grave and complex constitutional symptoms and local lesions—if these phenomena do not present the leading "peculiar features" of land scurvy, we ask what symptoms do? and if lemon-juice, tartaric acid, and a salt of potash prove effectual remedies, what then? We are not ambitious to "shiver a lance" with Dr. Wood; but nevertheless, as our views are crowded to the side of error by him, in the diagnosis of a disease in which we have had much experience at the bed-side and he none, we owe it to medical science and humanity, to endeavor to right ourself, and stay the promulgation from so high authority of so absurd a medical philosophy as teaches that this is a *new disease;* that it is *peculiar to nursing women;* that it is caused by some *unknown baneful influence exerted on the system by nursing, etc., etc.;* and that denies that *soreness of the mouth in a suckling woman, anæmia, prostration, salivation and diarrhœa,* present the "peculiar features" of scurvy; and where, in the same breath, it discloses unwittingly the reason why *lemon-juice, tartaric acid and a salt of potash* are reliable remedies!

Dr. Channing's Article.—In the *New England Quarterly Journal of Medicine and Surgery,* for October, 1842, is an article on this affection, with cases, which is epitomized in the *Maryland Medical and Surgical Journal* for December of the same year, as follows:—*Notes on Anhæmia, principally in its Con-*

nections with the Puerperal State, by W. CHANNING, M. D. The cases detailed in this article are quite interesting, and seem to demonstrate the existence of some pathological condition other than the loss of blood, producing the condition which Dr. C. thinks is improperly called *anhæmia*. He ventures to suggest, and sustains his suggestions with great plausibility, that this pathological condition consists, if not entirely, at least in great part, in the subversion of the functions of the capillary system, by which the blood passes from the arteries to the veins, without undergoing its usual changes. The symptoms of this condition are a brilliant whiteness, smoothness, roundness, dryness and warmth of the surface every where; the blanched lips, mouth, tongue; the scarcity of external or subcutaneous veins, and the bright pink color of their contents, with the want of the roundness in these vessels, which results from fullness, various noises in the head, the mind in various states, but generally having a serene anticipation of death. There is tumultuous action of the heart. Dr. Channing, sustained by his cases, infers a close connection between the puerperal state and this morbid condition, and in such a connection the disease is most fatal. The cause of the disease being so obscure as it is, the treatment is necessarily undefined, and can only answer obvious indications. Dr. C. suggests as an inquiry, what might be the effect of transfusion?

Remarks.—The 'puerperal anæmia' of Dr. Channing is evidently the 'serious affection' of Dr. Hall, and the 'nursing sore mouth' of other contributors. Doubtless also it is the 'hydræmia gravidarum' and 'endangium out of order' of Dr. Meigs, and the 'leucocythemia' of Dr. Bennett. There is something behind the scene in the pathology of all these watery blooded cases, with a powerless fiber, palpitating heart, panting respiration, and a brain looking with serene anticipations on death, that stamp them as more than simply *anæmia*, or loss of blood, as Dr. Channing says, and we fully agree with him that the affection is improperly called anæmia: it is the scorbutic diathesis developed in various de-

grees and in various ways, and sometimes in delicate females by improper restrictions in diet under medical direction. The materials for healthy blood have been withheld from the dietary, or the organs of digestion so deranged that nutrition and assimilation have become starved of their rights. It appears idle to us to look for the cause of the difficulty in some unknown, mysterious disturbance of the functions of the capillaries, as Dr. Channing suggests, or in the endangium as Dr. Meigs conceives, or in the spleen as Dr. Bennett argues. No doubt the capillaries, the blood membrane, and the spleen are all at fault, and suffer from impoverished blood. All the solids are equally as hydræmic, or leucocythemic, as the blood itself; hence the softening of glandular structures, and local lesions of the tissues. Where the causes and the coöperating causes are acting powerfully, as in a delicate breeding woman who has suffered in the earlier months of her pregnancy from morning sickness, and in the latter months from heart-burn, and who has been dieted on tea and toast, ulcers of the mouth should break out before delivery; but under more favorable circumstances there may be no local lesions, and yet very marked constitutional derangement. We have met with cases of years' standing where there were no ulcers of the mouth, only a lividity of its tissues, without salivation, even; and we have known cases of the affection to terminate fatally where soreness of the mouth was not complained of at all.

This leucocythemial, or white cell blood diathesis, is particularly prevalent in malarious districts. We have seen much of it under such circumstances in both sexes. It is much more frequently met with, however, in females, from the chlorotic girl to the suckling mother, than in males, as the victims of land scurvy are "principally women." (*Good.*) Iron alone is not a sufficient remedy, though we agree with Dr. Meigs (Letters to his Class *On Woman and her Diseases,*) that it is a good one; but all the elements of a healthy nutrition, as furnished in the "good rich diet" advised by Dr. Judkins, and the "nourishing jellies and soups"

recommended by Dr. McGugin, together with the acidulated drinks of Dr. Hale, must be judiciously brought to bear upon these cases, aided by tonics, and a correct hygiene; which being found effectual, proves our views of the nature of the malady correct.

Dr. Channing infers a connection between the puerperal state and this morbid condition, in which connection the disease is most fatal. Others have inferred its connection only with the later period of lactation; but we have seen that it is also associated with gestation, and furthermore, that it is often the inheritance of infancy. The majority of infants at the breasts of mothers laboring under it, imbibe it. This we have verified over and over again, during the last twenty years, by the success of the lemon-juice treatment. We have rescued hundreds of puny, suckling infants, covered with indolent boles, or wasting under diarrhœa, simply by the administration of lemon-juice to the mothers, and throwing away the blue pill mass, etc., with which they were being drugged. Now the records of scorbutus show that infants imbibe the diathesis from the impoverished materials afforded by the milk of mothers laboring under it. And who so blind as not to see the identity? But let us briefly trace this infantile inheritance from nursing sore mouth or scorbutic mothers. If the infants live to be weaned, thousands upon thousands of them perish of cholera infantum during their second year. If some of them reach puberty, the vis vitæ is too feeble, and green-sickness sets in, and ends in the local lesion of tuberculosis If chlorosis be averted by chalybeates and a proper hygiene, still the leuco-phlegmatic constitution is formed in the girl, as her lax solids and palid countenance, lucorrhœa, falling of the womb, and tendency to local lesions of the os, import; and when this victim becomes a mother, nursing sore mouth sets in as a matter of course. Our philosophy, then, goes further back than simply to note that the leuco-phlegmatic constitution is the one for ever liable to nursing sore mouth; it

explains the *cause* of this constitution, lifts the curtain and gives us a peep behind the scene.

Dr. Shanks' Article.—This article, *On Endemic Sore Mouth and Diarrhœa peculiar to Nursing Women*, by LEWIS SHANKS, M. D., of Memphis, Tennessee, we find epitomized in the December number of the *Maryland Medical and Surgical Journal*, December, 1842, drawn from the *American Journal of the Medical Sciences*, October, 1842, as follows: "In the treatment of this malady, when it occurs in the last months of gestation, as it sometimes does, Dr. S. relieves the excitement in the robust and plethoric by bleeding, followed by alteratives and laxatives, such as blue mass, calcined magnesia, and rhubarb in small doses; in those of feebler health, in whom there is little or no feverish excitement, he prescribes, as a tonic and alterative laxative, a combination of blue mass, ipecac, carb. of iron, rhubarb and aloes in proportions to suit each case. Ipecac alone, in doses of from one half to two grains, is a good remedy.

During nursing, when the disease becomes chronic and is attended with diarrhœa and emaciation, a course of alteratives and a rigid attention to diet are indispensable. In some bad cases a solution of arsenic and corrosive sublimate, containing of each a sixteenth of a grain for a dose, given two or three times a day, with a diet and drink of soda with barley water, or of wine and water and milk, has succeeded better with Dr. S. than any other course he has tried. As a wash for the mouth, the infusion of sanguinaria is recommended by him. Weaning the child is indispensable in grave cases attended with much emaciation and nervous irritation. In a description of this disease as it occurred at Rochester, N. Y., Dr. Backus says, the onset is often sudden and the bowels always constipated; and the most successful treatment is with alteratives and laxatives combined; but at Memphis, Tennessee, it comes on gradually and in its well-marked chronic form, which never occurs except during lactation; the constant diarrhœa excludes the use of purgatives or laxatives. In the same city, and in the

level alluvial country near it, constipation is rare either in health or disease.

Dr. Taylor's Article.—We find an epitome of this also in the *Maryland Medical and Surgical Journal*, March, 1843, drawn from the January number, same year, of the *American Journal of Medical Sciences.* It is entitled *Remarks on a Species of Sore Mouth peculiar to Nursing Women;* by B. W. TAYLOR, of Monticello, Fa. "After having tried various tonics, vegetable and mineral, and laxatives, with only partial success, Dr. T. has found that equal parts of sulphur and cream of tartar in broken doses, to keep the bowels open, constitute the best treatment as regards internal remedies. It appears to have almost a specific influence over this disease. The best external application he thinks is borax. He has also derived great benefit from a weak solution of nitrate of silver. In cases attended with considerable exhaustion, the sulphur and cream of tartar should only be used to the extent of obviating costiveness, if it exist; and tonics, such as iron, cinchona, and elixir vitriol should be given. Porter is also advised. Should the case be complicated with diarrhœa, opiates should be given, with mucilaginous drinks and farinaceous diet. In cases that prove refractory, wean the child, when a speedy cure will take place."

Remarks.—This article furnishes further proofs of the efficacy of the salts of potash and soda in this disease.

Dr. Ware's Article.—In the *American Jour. Med. Sciences*, 1849, is a brief article on "*Nursing Sore Mouth*, by J. YALE WARE, M. D., of Massachusetts, "stating that the affection is rapidly on the increase in that locality. No symptoms or cases are given, but Griffith's myrr. mixture is recommended as an infallible remedy. Nitrate of silver as a gargle is also advised, of the strength of two grains to an ounce of water, and a teaspoonful to be swallowed three times a day if soreness extends to the stomach. It is believed if this course is pursued weaning need not be resorted to.

Dr. Holt's Article.—A brief article appeared in the *New*

York Jour. Med., in May, 1848, from the pen of HENRY D. HOLT, M. D., of New York, recommending the hydriodate of potash in five-grain doses three times a day, given in the compound decoction of sarsaparilla. This had proved effectual in sundry obstinate cases. The doctor says, "without propounding any theory of the pathology of the disease, or modus operandi of the medicine, I feel persuaded that the one is as near being a specific for the other as can well be conceived."

Dr. King's Article.—This article of Prof. JOHN KING, M. D., of Cincinnati, appeared in the *Eclec. Med. Jour.*, April, 1852, and although it gives a similar account of the disease to that which may be found in Bell or Wood, presents nothing particularly new in the history or treatment, except that it is stated there *is always a dry, inactive state of the skin*, for which alkaline washes and the spirit vapor bath are recommended. And we take leave to add, that the skin is always *scurfy*, oftentimes sprinkled with *petechiæ*, and in some instances of extreme prostration we have seen *vibices*.

Thus much for the history and literature of the affection, embodying the present state of medical knowledge on the subject. Some few other papers giving an account of the affection have appeared, we believe; but, so far as we have been able to learn, the disease has never been suspected of being of scorbutic character by any contributor save ourself. We are not able to say what the impressions may now be on the mind of the profession, after an examination of the literature of the affection with the key of explanation offered by us, nor are we anxious at all about the matter further than the interests of science and humanity are concerned. Indeed we would rather regret to have proselyted many to our views in this early stage of our inquiry, lest interest in the subject flag, and would rather invite a supension of opinion until we shall have pushed our inquiry through its several chapters. A question in practical medicine as important as this, deserves to be well and carefully considered, and all

opinions sifted before final conclusions be drawn. This chapter is but preparatory—the collated views of others. If after our researches shall have been completed, it turns out to be the general sense of the profession that the nursing sore mouth affection is a *new disease*, then let it be retained in Wood, and in Stokes and Bell, and inserted in other standard authors; but if it be proved to be *scurvy*, let us study that disease instead, which, we think, has been culpably overlooked of late years.

Doubtless the same liability exists in the human constitution, to take on the scorbutic diathesis, that has existed since the days of Hippocrates, by whom it was first described, and that existed in all time before, and that will always exist to the end of time, under a faulty alimentation or a meager supply of proper materials for forming healthy blood, perverted digestion, and obstructed aeration.

This faulty condition, no doubt, obtains to a very considerable extent in the present state of society and modes of life, even under our improved notions of the etiology of scurvy and the more general attention paid now-a-days to gardening and fruit culture. The poor inhabitants of cities, who are compelled by necessity to the daily infraction of the laws of a healthy dietary, are thereby rendered more or less scorbutic unquestionably, a standing cause of the aggravation of all their diseases, and of the vast amount of infantile mortality in our large cities; and we shall show conclusively, before we finish these researches, that the rich and high-born are frequently rendered the victims of scorbutus by mistaken notions as to what constitutes a proper and wholesome dietary; in other words, that restrictions in diet together with sedentary habits lay the scorbutic diathesis in the symptoms of many a breeding woman in high life.

ART. IV. *Luxation of the Head of the Radius backward, with Fracture of the Inner Condyle of the Humerus.* By THOMAS M. MARKOE, M. D., Surgeon of the New York Hospital.

To an anatomist studying the construction of the elbow-joint and the attachments of the two bones of the fore-arm to one another, it would appear evident, I think, that luxation of the head of the radius alone must be an exceedingly rare occurrence. Not only is the upper end of this bone protected from direct external injury by being deeply imbedded in muscles, but the whole length of the bone is so firmly bound to the ulna, that an immense amount of force transmitted through the hand would seem to be necessary to separate all these interosseal attachments. Observation proves the correctness of this conclusion, and shows that luxation of the head of the radius alone is one of the rarest of all the injuries which occur at the elbow-joint. The luxation forward, in which the capsular and annular ligaments are ruptured, and the head thrown forward, so as to lie upon the anterior aspect of the external condyle, would appear, anatomically speaking, to be the most possible, because there is here only a separation of the upper portion of the bone from its ulnar attachments, the lower end of the two bones not being separated from one another. With regard to the luxation backward, where the head of the radius passes behind, and to the outside of the external condyle, I am myself disposed to say, after a good deal of experiment and reflection, that it is physically impossible without the concurrence of one of three conditions; either, first, such a projection of the ulna at the wrist as we must suppose would be produced by the ulna remaining sound, and the radius slipping up from it one inch, a projection which must necessarily produce a great deformity in the position of the hand and in the appearance of the wrist-joint; or, secondly, a bending outward of the fore-arm at the elbow to such a degree as to make a lateral angle of nearly 45°; or, lastly, a fracture either of the ulna itself, or of its trochlear base of support on the humerus, which, by displacement, would per-

mit the radius to be thrown from its articulation backward. In the absence of all of these effects and evidences of the luxation of the head of the radius backward, I cannot myself conceive the possibility of its occurrence, any more than I can conceive of a luxation of the hip on the dorsum of the ilium, without some shortening and deformity of the corresponding limb. In order to test the accuracy of my *a priori* reasoning, I have searched the records somewhat extensively for such cases as might have been reported, and I have not yet succeeded in finding one single unequivocal and undoubted case. Sir Astley Cooper had never seen this accident in the living subject, though he gives an account of a dissection of an old case of this luxation without saying any thing about the deformity produced, or of the possibility of the injury having been complicated originally with fracture of the ulna or humerus. Indeed, of the few cases which are reported, a large proportion have been seen by the reporters only after years have elapsed from the occurrence of the injury, and when the presence or absence of fracture could not be ascertained, and when any original deformity produced by the accident must be much modified by use and time. Sir A. Cooper alludes to another case, in the practice of one of his friends, but no account of the symptoms is given. He also, in his work on "Fractures and Dislocations," quotes two cases published by Langenbeck of Gottingen, which were considered as cases of simple luxation of the head of the radius backward. The first case, that of an adult, was not seen for six weeks after the accident, in which time a fracture would have firmly united; and in the child's case not a word is said of the signs or appearances presented. Langenbeck makes the remark, that with the exception of these two cases "I never met, during the whole course of my professional career, with a dislocation of the radius in any direction." In the *Dictionnaire de Medècine*, article "Coude," by Cloquet and Berard, the backward luxation is spoken of as occurring, though no case is given but the one of A. Cooper already alluded to. In a clinical lecture by

Gerdy, in the *Archives*, on Luxations of the Radius, a case is mentioned of lateral displacement of the head of the bone, which had occurred in infancy, but of which at the time of the accident nothing was known, and no other case is quoted, though the opinion of Boyer and others is alluded to, that the luxation backward is more common than the luxation forward. Vidal de Cassis goes extensively into the consideration of the subject of fractures and luxations, and says, that luxation backward is the more common form, but gives no case. Baron Boyer, who also treats the general subject very fully, merely asserts, that the luxation backward is the only possible form, and of it he gives a description *in extenso*, without however alluding to either of the three conditions, which seem to me to be so essential as physical results of the accident.

If we turn now our attention to the second feature of the accident under consideration, we shall be surprised at the discrepancy of opinions with regard to the frequency of its occurrence. Most of the principal authors, who treat largely of fractures, speak of fracture through the internal condyle as occurring not unfrequently, while Malgaigne, a prime authority, says, after alluding to the above opinion as held by Desault, Charles Bell, and Astley Cooper, "In spite of this triple authority, I regard this lesion as excessively rare. I have never seen it for my part. Neither Desault nor Charles Bell gives any examples of it, and in the single case cited by Astley Cooper there was, at the same time, fracture of the condyle and fracture of the olecranon." Malgaigne, however, alludes to a case which was presented to the Academy in 1828, by M. Caffort, in which "a woman aged forty-five years fell upon her elbow. M. Caffort recognized immediately a luxation, of which he obtained the reduction with a facility which surprised him. Examining afterward the joint, he perceived that the internal condyle of the humerus was very movable, and a manifest crepitus, joined to this sign, left no doubt as to the existence of the fracture." This is a case precisely in point in reference to

our present inquiry, and it is only to be regretted that some details of the appearances of the injured joint are not given. In Cooper's work on *Fractures and Dislocations*, the editor has introduced a full account of a case, which he calls "dislocation with fracture of the internal condyle," which was sent to Sir Astley for his opinion, which opinion, however, is not recorded, except so far as the above title would indicate his views as to the nature of the injury. The case is one of a young lad aged fifteen, who was thrown from his pony, and dislocated in the fall his left elbow. "Both bones of the fore-arm were dislocated. The ulna was thrown backward, and the radius also lying toward the outer condyle completely separated from the ulna. The ulna was easily reduced by extension over a bed-post; the radius, however, did not return to its place. I then accomplished its reduction by an extension of the hand, pressing the head of the radius forcibly downward with my thumbs at the same time." The cure was tedious, and, ten weeks after the accident, the bones appeared to be in their proper relations, excepting a slight increase of the space between the olecranon and the prominence of the internal condyle, and a bony projection between these two points. The writer of the case concludes: "It appears to me probable, either that the swelling, which seems to be partly of a bony nature, may have been produced by inflammatory action, consequent on the injury, or from that portion of the trochlea of the humerus which forms the inner ridge supporting the ulna having been broken off at the time." With the exception of these two cases I have not found, in any of the principal systematic treatises on fractures and dislocations, any allusion to the possibility of the occurrence of the accident under consideration.

The three following cases having come under my immediate observation, have brought the consideration of this peculiar accident very strongly before me. I have thought them worthy of being placed on record, because, having encountered three examples in about six years, I could not but suspect that the injury described might be more fre-

quent than was commonly supposed, and had escaped notice by being confounded with simple luxation of the fore-arm, or with some of the many other complicated and obscure injuries which so often occur about the elbow-joint.

CASE 1.—During the fall of 1849 I was sent for to see J. H., who had a day or two before fallen from a hay-loft, striking upon his left elbow. Great pain and inability to move the limb followed the accident, and soon after very great swelling round the injured joint, so that at the time of my seeing him it was impossible to trace the bony prominences of the articulation, and therefore an accurate diagnosis was out of the question. I was forced, therefore, to content myself with supporting the arm in a sling, with the elbow in a semi-flexed position, which was a comfortable one, and applying a cooling spirit-lotion to the inflamed joint with a view of reducing the swelling. This was sufficiently accomplished, at the end of a week's time, to enable me to ascertain that the head of the radius was dislocated backward, and projected behind the external condyle in such a manner that the finger could very plainly recognize the cup-like depression on its superior surface. At the same time, though there was some deformity about the internal portion of the joint, yet there was not sufficient projection backward of the olecranon for luxation of both bones, and the exact relation of the internal condyle and the olecranon could not be fully made out on account of the swelling, which seemed to be greater on this side than on the other. There was a slight feeling of crepitus somewhere about this internal portion of the joint. There was no considerable deformity in respect to the position of the fore-arm and the arm, and no deformity at the wrist. In thinking over the symptoms of this case I could not satisfy myself that it was possible for the head of the radius to be so completely displaced, without either a corresponding projection of the ulna at the wrist, or else a fracture of either the ulna or its trochlear support, which might permit the radius to slip up, or finally so great a degree of bending

laterally outward of the fore-arm on the arm, as would amount to an angle of more than 45°. In deciding upon these physical possibilities, the symptoms so evidently pointed to fracture of the internal condyle through the trochlea that I could scarcely avoid making that my diagnosis. It seemed to me clear that the fracture had involved the inner condyle in such a manner as to pass obliquely across the bone, and to include in the broken fragment the larger part of the trochlear articular surface, which being displaced backward would allow the ulna to fall sufficiently back to give the radius a chance to be entirely luxated. This view was confirmed by a very thorough examination of the part, made while the patient was under the influence of chloroform, to which we subjected him to facilitate our attempts at reduction. The displacement was easily reduced by extending the fore-arm on the arm steadily for a few minutes, and making firm traction in the length of the limb, and then bending the elbow to a right angle over the knee. All deformity ceased, and all the motions seemed to be restored. My impression is, that after the reduction, the crepitus became more distinct, and more clearly referable to the internal condyle; but, as I took no notes of the case at the time, and am now giving it from memory, I cannot insist upon that point. The limb was kept in a curved tin splint at about a right angle for three weeks, to give the fracture time to unite. Passive motion was then begun with great care. The arm was gradually restored to its functions, and by the end of a year was as strong and as useful as the other. Two or three years after the accident I examined the elbow, and the only trace which it presents of the injury is a slight thickening and irregularity about the internal condyle.

CASE 2.—Patrick Riley, æt. 16, an Irish sailor boy, was brought to the New York Hospital, June 5, 1854, with an injury of the right elbow-joint, received a short time before in a fall from a load of wood. At first sight, the appearance of the joint was that of a luxation backward of the fore-arm,

but upon a more careful examination, it was perceived that the olecranon did not project backward nearly as much as is usual in the complete luxation. The head of the radius was manifestly dislocated backward, and the cup-shaped extremity of it could be felt and even seen projecting behind and below the external condyle of the humerus. On the inner aspect of the joint the olecranon could be felt about half an inch further back than it should be, and, in connection with it and displaced backward with it, could be felt the internal condyle of the humerus, while a little above the point usually occupied by the prominence of the condyle, was a sharp, bony projection, which was evidently the extremity of the inner condyloid ridge from which the condyle had been fractured off. The movements of the joint were very much limited in every direction, and in particular, rotation of the radius was much restrained. The case was regarded as one of fracture through the internal condyle, as it forms the base of support for the trochlear articulation, with such a displacement backward of the fractured portion as would allow of complete luxation of the head of the radius. The accident being recent, and examined under ether before any swelling had commenced, the points on which the diagnosis was founded were very clear and easily recognizable, and the conclusion arrived at was confirmed by two of my colleagues who saw the case. By drawing down firmly, and flexing the fore-arm on the arm, the reduction of both displacements was easily effected, but slipped out again with equal facility if not carefully handled. After the reduction crepitus became more manifest, and could be referred with precision to the moving of the fractured condyle. The arm was kept in the semi-flexed position, and supported in a grooved tin splint for the usual time, when passive motion was carefully commenced. The recovery was accomplished without accident, leaving him a limb perfect in all its movements, but showing some little deformity, perhaps from slight displacement backward of the broken fragment of the condyle. None but a very curious eye, however, would observe any difference between the two limbs.

CASE 3.—B. P., æt. about 14 years, was brought to me by a gentleman of this city, under whose care the case had been for about a month, for my opinion on an injury of the left elbow, which he had sustained four weeks previously by a fall in which the inner part of the joint struck with force against a projecting corner of a trunk. Great swelling had taken place before Dr. —— saw the arm. He could detect obscure crepitus, but the great swelling prevented a satisfactory examination from being made. He, however, considered the case as one of luxation backward of the fore-arm, with fracture through the epiphysis of the humerus, and fracture of the coronoid process. He reduced the luxation and bent the arm at a right angle, and placed upon its anterior surface an angular elbow splint, with two corresponding ones on the arm and fore-arm behind. These were kept on about three weeks, and then passive motion was commenced.

I found the limb extended nearly to the straight position. Flexion at the elbow was very painful, and so much constrained that it could not be brought up nearly to a right angle. There was great deformity of the elbow-joint, but the inflammatory swelling had very much disappeared, so that it was easy to make out the following points. The olecranon and the head of the radius were in their proper relation to one another, and their motions upon one another, though somewhat restrained, were easy and gave no pain. The external condyle was prominent toward the outer and anterior aspect of the joint, and behind and to the outside of it was seen and felt the head of the radius, into the cup-shaped cavity of which the finger could be introduced. The relations of the internal condyle with the olecranon were but little altered, but there was nevertheless such a projection backward of the olecranon, as, in connection with the luxation of the radius, to give the joint the appearance of luxation backward of the fore-arm. That the ulna, however, was not displaced from its articulation with the humerus in the usual way appeared certain; first, because the

projection backward of the olecranon, though marked, was not as great as in the complete luxation backward; and secondly, because the internal condyle and the olecranon were in almost their proper proximity to one another. The humerus, in the region of the internal condyle and of the trochlear cavity, was a good deal thickened, and apparently enlarged by the deposit of new bony matter. The whole lower extremity of the humerus was felt prominent on the anterior aspect of the joint, as it is in luxation of the fore-arm backward. From these appearances I made up my mind that the accident had been originally one of those above described, in which a fracturing off of the whole or a part of the trochlear surface had, by its yielding, permitted the peculiar luxation of the radius, and the displacement of the ulna. As far as I could ascertain, union of the broken piece had already taken place, but that union was probably still soft. I therefore recommended that the reduction should be attempted in the usual manner, by traction and flexion over the knee, and that afterward the limb should be treated as an ordinary fracture of the internal condyle, by being bent to less than a right angle and confined in this position for three weeks, beginning then with cautious passive motion. The reduction was effected as recommended, the next day, when all the deformity ceased, the union of the broken fragment being so soft as to yield without trouble, and the motions of the fore-arm on the arm became perfect. The after treatment was fully carried out; and when I saw him, seven weeks after, he was rapidly regaining the motions and power of the limb. A good deal of thickening remained about the region of the fractured condyle, but the bony prominences of the articulation had all regained their normal relations to each other, proving that the bones were in their proper position.

The diagnosis of this injury is founded, first, on the appearance of the elbow. The backward prominence of the dislocated fore-arm is not near so great as in the ordinary luxation of both bones, while the prominence of the radius is so marked

that it attracts the greatest share of attention. Secondly, the relation of the internal condyle and the olecranon is almost undisturbed. A slight difference, in feeling these points on the two arms of the patient, arises from the fact that, as the fragment of the condyle is displaced backward, it is rotated somewhat upon itself, so that while the upper point of the fragment, which corresponds to the condyloid ridge, is held partly in place by the periosteum and the muscular origins, the lower part, which corresponds to the articular surface, is pushed back half an inch or more. This rolling of the fragment produces a slight difference on the two sides in the relation between the olecranon and the condyle, which can be felt, but not easily described. Where however the displacement of the fragment is more complete, we can feel distinctly the sharp point of the condyloid ridge from which the fragment has separated, as in case No. II., and here we have the relations of the olecranon and condyle unchanged. The importance of this sign, drawn from the unchanged position of the internal condyle and olecranon, which in fact is the characteristic feature of the injury, will be appreciated when we remember that in the ordinary luxation backward of the ulna, the humerus is thrown forward of the coronoid process, thereby making the olecranon to project fully one inch behind the inner condyle. Thirdly, the facility with which the luxation is reduced and the ease with which the deformity is reproduced. This is not only a striking feature of the injury, but is a reason why the treatment must be carefully conducted after the reduction, and why, when the accident is not fully understood, the original deformity would be likely to be reproduced during the treatment, and the use of the arm be perhaps entirely lost. Fourthly, the crepitus and the false point of motion, which can be best appreciated when the reduction has been effected. When the joint is much swollen, as in case No. I., or when the injury is examined some weeks after the accident, as in case No. III., this sign of course would be indefinite or entirely absent; but in a recent case, before swelling has commenced, as in case No. II., this symptom is very distinct and easily elicited.

The treatment is directly deducible from the case itself. The displacement must be reduced, and the fractured surfaces must be replaced and kept in position during a sufficient time for union to take place, and then passive motion must be cautiously commenced. The reduction is easily accomplished by drawing the fore-arm downward and, after moderate traction, bending the fore-arm on the arm to less than a right angle. The more difficult and more important indication however is to keep the bones in proper relation till the fracture shall unite. This I think is best accomplished by the plan already alluded to, of placing the elbow, bent to less than a right angle, in a tin angular splint, which may be placed either on the posterior or outer aspect of the limb, and then by moderate compression with a roller round the elbow keeping the detached fragment against the humerus as far as possible. By bending the joint at less than a right angle the ulna itself acts as a splint, and, by its support on the uninjured portion of the trochlea, holds in its place the lower or articular part of the fragment, to which it is of course attached by the ligaments. The upper point of the fragment is kept in position by the pressure of the bandage, to which might be added, if necessary, a soft compress of lint, or even, if the fragment were large, a straight splint for more thorough support. In case No. III., the gentleman in attendance applied an anterior elbow splint, and two separate ones behind, above and below. It is very evident that, without very tight compression with a bandage, and even then indirectly and imperfectly, proper support could not be given this way. I think that the splint is best placed on the outside or on the posterior aspect of the limb, as in either of these positions direct support is given against backward displacement of the joint. A splint on the inside is equally useful, but is objectionable by covering up the part which you wish to watch with most care. The splint which I have used is tin, guttered so as to receive one half of the circumference of the limb, and made to measure by the tinsmith to each particular case. It should be bent at about

10° less than a right angle, and firmly soldered, with a hole opposite the external condyle to prevent abrasion or pressure. In this position the limb should be kept for about three weeks, when passive motion and time will perfect the cure; and, from my limited experience, I should hope usually with perfect restoration of the form and function of the injured joint.

NEW YORK, APRIL, 1855.

ART. V.—*On the Use of Large Doses of Quinine in Intermittent Fevers.* By STEPHEN W. WILLIAMS, M. D., late of Deerfield, Massachusetts, now of Laona, Winnebago County, Illinois.

IT is not my intention to enter into a disquisition upon the treatment of intermittent fever, generally. This must be as variant as the symptoms by which it is diversified, and it requires as much skill and judgment in the management of this complaint as of any other specific fever. Were it otherwise, the practice in this kind of fever would be empirical, and quinine would be considered an absolute specific in it. True it is that this article is considered, by most physicians, to be the most efficacious of any which has been employed, and it is more generally used than any other remedy. But it is not the only one, and other remedies are necessary, according to the variation of the symptoms.

Our object in this investigation is to inquire, whether many physicians at the West and South are not in the habit of using it in larger doses, and more profusely, than absolute necessity requires. It is a medicine of prodigious power, as may be known from the fact that twelve grains of it, if properly prepared, contain as much of the active principle as an ounce of the bark from which it is obtained. More than two drachms of the bark, in substance or decoction, cannot be borne even by a healthy man without producing highly stimulating and irritating effects. Many physicians are in the habit of administering from ten to thirty or forty grains at a dose, and even much larger portions at once, and the quantity of quinine which is vended at our markets at the

South and West is immense. But are not such enormous doses often followed by very serious results? And are not such doses, frequently repeated, poisonous? Our best writers on the Materia Medica, such as Perrane, Wood and Bache, Lee, Drake, and many others, speak of from one to five-grain doses as generally amply sufficient, though in malignant intermittents some of them recommend larger doses, but not so frequently administered.

Doctor Lee, in a note to his edition to COPLAND'S *Dictionary of Practical Medicine*, vol. i., p. 1096, says: "After preparing the system, by blood-letting or emetico-cathartics, for the quinine, we usually prescribe it in doses of two grains every hour, commencing three or four hours preceding the paroxysm, or one grain every half hour, beginning six hours before the paroxysm. These doses will, in ordinary cases, prove amply sufficient, and no injurious consequences follow their administration."

Dr. Drake, the great medical pioneer of the West, in his voluminous and most valuable work on the "*Principal Diseases of the Interior Valley of North America*," in condensing the opinions of the most celebrated physicians at the West, says: "As to the doses in which quinine should be given, I have found much diversity of opinion and practice. On the whole, the people, and a majority of our physicians, administer one or two grain doses at short intervals, and the practice is undoubtedly, on the whole, successful. In protracted cases this mode of exhibition may be the best; but in the early stages, and when the object is (as it should be) promptly to arrest the disease, occasional larger doses are, I think, to be preferred."

In malignant intermittent fever, undoubtedly larger doses of quinine may be administered, than in simple ones. Dr. Drake relates instances where it has been administered in doses of from twenty to sixty and even eighty grains at a dose, without producing any visible dangerous effects in malignant intermittent fever. He then significantly asks, whether such doses are really necessary to arrest the parox-

ysm of a malignant case? He then remarks that "a majority of our physicians do not resort to such doses," and they are equally successful as those who do. He makes a very great distinction between a common intermittent and a malignant one, and says "that in very violent and dangerous cases, as the medicine *may* be administered in great doses without any empoisoning effects, it would certainly be prudent to give it liberally." There are cases in which vastly more than the usual doses of calomel, opium, and the narcotics generally, may be necessary in the treatment of individual cases of disease. Even a case is mentioned in the notes to Childe Harold's Pilgrimage, of a Turk, who by long use was enabled to take a drachm of corrosive sublimate in a day, with impunity; but these cases do not imply that these doses are proper in ordinary cases, and the same will apply to quinine in common intermittents.

Dr. Drake says: "In ordinary cases, a scruple taken in one intermission, will, I think, according to the experience of our profession, be found sufficient; and with adjuvants even half that quantity may often answer." These adjuvants are some of the preparations of opium, arsenious acid, piperine and calomel. In relation to the large doses of quinine which have been administered by army surgeons, he thinks that many soldiers are or have been intemperate, and will consequently bear larger doses than would be advisable in private practice.

Dr. Wood, in the second edition of his *Practice of Medicine*, 1849, vol. i., p. 242, is in favor of small doses of sulphate of quinine in intermittent fever. He says: "From twelve to twenty-four grains of the sulphate of quinine should be given between the paroxysms, and continued in this quantity till the disease is arrested. The effect is different in different individuals. In some cases it produces roaring in the ears, and in some partial deafness, which they experience after having taken but a small quantity. The cerebral sensations produced by it may be considered a sign of its action on the system."

In a quotidian intermittent, one or two grains every two hours will generally be sufficient; in a tertian the same dose once in four hours; and in a quartan, once in eight hours. He further says: "Some physicians are in the habit of prescribing very large quantities of the sulphate in all cases indiscriminately. From thirty to sixty, or even one hundred grains have been given during twenty-four hours. I do not remember to have found more than twenty-four grains in that period of time necessary. These enormous doses are not without risk. There is reason to believe that permanent deafness has resulted from them. One such case has come under my own observation; at least the affection was ascribed to that by the attending physician. Where there is tendency to cerebral inflammation, it would be very likely to be developed by large doses of quinine, and cases of this kind are on record. Besides, to employ the quinine so profusely in ordinary cases is to make great waste of a most valuable and costly medicine, and thus unnecessarily to enhance the price. Upon the whole, I prefer the plan of administering the medicine in small doses and often repeated, and of distributing it equally through the apynexia,—the time of sleep being as a general rule omitted. One or two grains of the sulphate may be given under ordinary circumstances every hour or two hours, until the requisite quantity has been administered."

The following note in COPLAND'S *Dictionary of Practical Medicine*, by Dr. Lee, upon the subject of intermittent fever, vol. i., p. 1095, will show that this medicine is not to be tampered with, and that the administration of it in large doses is often attended with deleterious, and even dangerous effects. The note is long, but as the work of Copland is not in the hands of every physician, I shall doubtless be pardoned for inserting it at length.

"Within a few years the practice has been introduced of giving much larger doses of this article than practitioners were formerly in the habit of administering; but the advantages resulting from this practice are not so obvious. It is

not unusual to hear of tinnitus aurium, cephalalgia, loss of vision, and other affections following its use, when given in very large quantities. Trousseau mentions the case of a man who was rendered insane by having taken twenty-four grains of quinine in one day. In another instance a man took forty-eight grains sulph. quinine for the relief of asthma. Four hours after taking the medicine he experienced noise in the ears, dullness of the senses, vertigo, and severe vomiting; and seven years afterward he was blind and deaf, his mind wandered, and he was unable to walk, the vomiting of bile still continuing. Trousseau mentions that fifteen or twenty-five grains in a day often produce deafness and other unpleasant symptoms. Bretonneau calls attention to the danger of giving quinine in large doses, remarking that it causes a distinct febrile movement, preceded by tinnitus aurium, deafness, and a species of intoxication. He also states that it causes diarrhœa, and, when applied endemically, it irritates, producing considerable local pain, and unequivocal signs of inflammation. At the Hospital La Charitie of Paris, a patient recently died from swallowing a single dose of seventy-six grains of quinine, and a smaller dose produced the same result at Cochin Hospital. The symptoms were pain in the head, then tinnitus and general agitation, followed by delirium and coma; amaurosis has also followed from taking it in large doses; and death following its use in acute rheumatism became so frequent, some time since in Paris, as to excite a public discussion. (For an account of this discussion see London Lancet for February 5, 1843). After a full discussion of the subject, the French Academy have decided that the same therapeutic effects may be obtained by the ordinary doses of the remedy as by large ones. For a case of poisoning by two drachms of quinine see the *Provincial Medical and Surgical Journal*, December 23, 1843. In the *American Journal of Medical Sciences*, April, 1844, it is stated that "M. Recamier ordered for a man, twenty-six years of age, laboring under acute rheumatism, forty-eight grains of sulph. quinine in twelve powders, to be

taken every hour. The next day seventy-two grains were ordered, six to be taken every hour; but after the eighth dose the patient was suddenly seized with a violent agitation, followed by furious delirium, and died in a few hours. On examination evidences of severe inflammation of the cerebral membrane were discovered." We might cite numerous cases and authorities to prove the danger of administering this potent drug in large doses; but the above will suffice to caution the physician against adopting a mode of practice fraught with such hazardous consequences to the lives and the health of his patients. (See a paper on the "*Use and Abuse of Quinine*" in the *Boston Med. and Surg. Journal*, vol. xxxii., p. 249).

We again recur to Dr. Drake, page 746. "*The Sulphate of Quinine.* This medicine cannot be referred to the class of simple diffusive stimulants, such as capsicum or ammonia, which in large doses excite inflammation and fever; nor to that of tonics, as gentian, columba, and the carbonate of iron; for although in minute and regularly-repeated doses it will, to a certain degree, excite and sustain the action and energies of the system, these effects are by no means those which characterize it as a therapeutic agent. It has, perhaps, better claims to be admitted into the order of sudorifics, for increase of perspiration generally follows its administration, if the system and the regimen of the patient be favorable to such effect. With greater propriety, however, it may be grouped with the sedative and anti-spasmodic narcotics, but not with the soporific division, for it does not, like opium, produce sleep. When its operation in liberal doses is noticed, it will be observed to diminish the frequency and spasmodic force of the heart's contractions, expand and soften the pulse; increase the functions of the skin; and tranquillize the irritation. Its sinister effects on the brain are vertigo; on the organs of sense, *tinnitus aurium*, and temporary hardness of hearing. The last is analogous to the effect of some other narcotics, as stramonium and belladonna, on the pupil of the eye. In generalizing the

phenomena which follow its exhibition in considerable portions, we may say that its action is directed more on the great sympathetic, and the muscular system of the apparatus of organic life generally, than upon the functions of animal life;—another point of distinction between it and opium."

The London *Medical Times*, as quoted by the *New York Journal of Medicine*, No. I., p. 126, in an article by John Foote, Esq., says: "The sulphate of quinine has been recently tried to a very great extent, and in enormous doses, in Paris, in the treatment of acute rheumatism and of typhoid fever. Several cases are recorded where the patients recovered; but others again have been published, from which it is clear that the unfortunate sufferers died from the poisonous effects of the over-dose of quinia,—of quininism, in fact." The *New York Journal* observes: "In France, this new method of treatment, more especially as regards rheumatism, seems to have been carried to an unwarrantable extent. In a letter from Dr. F. Campbell Stewart (now of this city) from Paris to the *Medical Examiner* of Philadelphia, it appears that Dr. Briquet, one of the physicians of the Hospital Cochin, lately published an account of eighteen cases of acute anticular rheumatism, which had been completely cured by very large doses of quinine. The practice was immediately generally adopted in Paris; but, in a short time, the zeal of those in favor of this new practice was damped by the death of five persons, evidently produced by the indigestion of these enormous doses of quinine. A case of rheumatism is mentioned where fifty-six grains were administered at a dose, increased to sixty-seven grains. By the time he had taken three and a half grammes, he was suddenly seized with extreme agitation, followed by furious delirium; and, in a few hours, death ensued. Dissection revealed the signs of general and most intense meningitis."

The sulphate of quinine, then, being a medicine of such active and prodigious power, and the administration of it in large doses being often attended with deleterious, and some-

times even with fatal effects, and the use of it being so very expensive, it is much to be hoped that an article may be found equally efficacious, less dangerous, and less expensive. And many distinguished physicians and medical botanists are now turning their attention to it with unwearied assiduity; and some think that they have discovered remedies which are more safe, equally efficacious, and more economical as to price. Many other discoveries require to be tested by longer experience, and to be more generally employed, before they will receive the sanction and general approbation of the great body of the profession. I pass over the more than thousand *absolute specifics* for intermittent fever, which have been employed in common practice, and are to be found in newspapers and *laical* journals. These may be classed with the *certain cures* for dysentery, cholera, erysipelas, burns, and various other complaints incident to the human body. If reliance were to be placed upon these and many others which might be mentioned in other complaints, the period would have arrived predicted by some, even in the profession, that death, except from accident and old age, would never occur. But unfortunately most of these boasted specifics are empirical, and not to be relied on.

On account of the incertitude of many other articles beside the quinine, Dr. Drake remarks: "And here I cannot refrain from observing that in a country of such vast extent as ours, many parts of which, from their topographical structure, must for ever remain subject to intermittent fever, it should be regarded as a duty of patriotism and humanity to test by exhibition and analysis such of our indigenous plants as in their sensible qualities bear any resemblance to the cinchona. He who should discover in our country a substitute for the bark out of which the sulphate of quinine is manufactured, would be honored as a benefactor."

I propose to look into some of our authorities for some substitutes for quinine, or at least for some which may be employed in its stead in the more ordinary cases of intermittent fever, and perhaps be efficacious in more severe ones.

This has already engaged the attention of some of the ablest men in our profession, and I trust with some success. I regret that I have it not in my power to enter more deeply into the investigation.

The medicine which next to quinine has been most extensively employed in the treatment of intermittent fever is arsenious acid, and particularly that preparation of it called Fowler's mineral solution of arseniate of potash. Many of the most distinguished physicians in this country and in Europe employ it, almost to the exclusion of quinine. My friend, Dr. Amasa Trowbridge, of Watertown, Jefferson county, New York, formerly Professor of Surgery in the Willoughby Medical University of Ohio, told me that in a very extensive practice in this complaint, he scarcely employed any other remedy, and his practice was very successful. Beginning with doses of four or five drops, it rarely becomes necessary to increase the dose beyond twelve or fourteen drops. If given much beyond this extent it sometimes produces an anematous state of the system, swelling of the extremities, affections of the stomach, and many other symptoms consequent on the poison of arsenic, which are so familiar to physicians that they need not be enumerated. It is rarely, however, carried to that extent in the treatment of this complaint. As physicians are acquainted with the toxicological effects of this medicine, they are guarded in the use of it, and consequently less danger is to be apprehended from it than from large doses of quinine.

Various preparations of the peruvian bark, such as cinchonium, quinoidine, the extract of bark, as well as the bark in substance, have been employed in the cure of intermittent fever, and, according to the testimony of many eminent physicians, with success. Indeed, the peruvian bark in substance was more generally employed than any other remedy, until within a period of twenty-five or thirty years. I have heard of no deleterious effects resulting from the use of the bark in this way, or in the other preparations of it except the quinine. Dr. George L. Upshur, surgeon to the

U. S. Marine Hospital, Norfolk, Va., has given the details of thirty cases of intermittent fever, in the *Medical Examiner* for December, 1854, in which perfect cures were effected by quinoidine alone, and there was no return of the complaint. Other physicians have also been successful with it. He uses it in doses of from two to four grains.

Quinine and Tartaric Acid in Intermittent Fever.—I find the following in the *New Jersey Medical Reporter* for July, 1854, on the use of this medicine, by Drs. Batella and Bartilli. (*Med. Chirurg. Review* and RANKING'S *Abstract.*) Two years since, M. Bartella brought forward his plan for the more economical treatment of ague by administering equal parts of sulphate of quinia and tartaric acid. He now (*Bull. de Therapeutique*) reinforces his former statements by new facts, having treated altogether 208 cases in this way, 196 of these being simple intermittents, and twelve pernicious fevers. Dr. Bartilli, who has been pursuing the same experiments, states as his conclusions (*Gazette de Hop.*, No. 87): 1. That sulphate of quinia given with equal parts of tartaric acid is more active than the simple sulphate. 2. As a general rule, half the quantity of quinia so combined suffices; but in some descriptions of fever, as in the pernicious ones of Italy, larger doses are required.

Many of the alkaloids of some of our indigenous medical tonics are much thought of by several eminent physicians, such as those produced from the various species of cornus, or dogwood, particularly of cornus florídæ and sericea, under the name of corneine; of the willows, under the name of salacine, etc. etc. Decoctions and powders of the various species of quercus, or oaks, eupatorium peroliatum, sabattia angularis, the various species of snake-root, chamomile, pinckneya pubens, aconitum napellus, alnus serrulata, capsicum, liridendron tulipifera, the various species of prunus, lupuline, and various others, too numerous to recapitulate.

The *hydrocyanite of iron*, or prussiate of iron, has been highly extolled by that excellent practitioner and learned physician, Dr. Samuel Jackson (of Northumberland,) Phila-

delphia, in the second volume of the *American Journal of Medical Science* for 1825. He does not consider it superior to the various preparations of the bark, if equal to it, in all cases. But he says, "This medicine appears to have five advantages over bark. 1. It can be given when inflammation is present, without sensibly aggravating it. 2. It is less likely to do harm when taken without medical advice. 3. It may be given in the advanced stage of remittent fevers, when we are yet doubtful of the propriety of the bark. 4. It may be useful in persons whose idiosyncrasies would seem to rebel against bark. 5. It is a much less expensive remedy." I refer the reader to this most interesting paper of Dr. Jackson.

Dr. Bertozzi, of Cremona, has proposed to substitute the hydrocyanoferrate of quinine, for quinine in fever, the powers of which, under the worst forms of intermittent fever, have been completely established." *(Dub. Jour. Am. Med. Jour.)*

G. Geniole, M. D., in the *Archives Generale*, Dec. 1832, and *Annali Univ.*, 1832, highly recommends the ferrocyanite of quinine in intermittent fevers, in doses of from one to two grains, and thinks it may be a useful substitute for quinine. *(Am. Med. Jour.*, No. 24.) Dr. Gouzer, of Antwerp, has cured three cases of intermittents by this remedy, in doses of a single grain, half an hour before the paroxysm; and Professor Berandi has recommended the citrate of quinine in intermittent fever, in doses of one third of the quantity of sulphate of quinine, and says it agrees better with the stomach, and causes less congestion of the brain. Dr. Spielman, in the *Jour. Des. Conn. Med.*, Febr. 1836, "asserts that the muriate of quinine is a more speedy and effectual remedy in intermittents than the sulphate. It is more soluble than the latter. The dose is from half a grain to a grain." *(Am. Med. Jour.)*

The chloride of sodium is highly extolled as an anti-periodic and remedy in intermittent fever, in the *New Jersey Medical Reporter*, by Dr. Edward D. G. Smith. This remedy was first suggested by Dr. Piorry, of Paris, who administered it successfully in doses of two table-spoonsful, once or twice a

day. He says this dose as promptly arrests the paroxysms as quinine. The observations of Professor Herrick, of Rush Medical College, corroborate the statements of Dr. Piorry, and he has been quite as successful in the use of it. He gives it in doses of three or four drachms twice every day in mucilage. Dr. Smith thinks that there is less tendency to the return of the disease at the expiration of a week, when cured by the chloride, than when quinine or arsenic is used, and he further says: "My friends, Drs. Eyrich, and L. G. Thomas, who have both given it successfully in many cases, are of the same opinion." As some patients would object to the common salt, Dr. Smith disguises it by rubbing it up with red saunder and a few drops of the oil of anise. Dr. Dugas, of Paris, highly recommends this medicine in intermittent fevers. J. S. Wilson, M. D., of Alabama, according to a statement in the *Southern Medical and Surgical Journal*, has employed this remedy and been successful with it, in a case which had resisted quinine and Fowler's solution.*

Dr. S. S. Purple, one of the editors of the *New York Journal of Medicine*, has published an elaborate and most able article in the September No. of that Journal for 1854, upon the *simaba-cedron*, as a substitute for quinine, and has given a beautiful engraving of the leaf, flower, and cotyledons of that tree, which is found growing in "New Grenada. Banks (near San-Pablo) of the Magdalena, *W. Purdie*, Isle de Caybo, coast of the Pacific, *Thomas Seemann*." A friend of Dr. Purple from Kingston, Jamaica, sent him a package in 1853, containing a pound of these cotyledons. He employed the powder of these cotyledons in five cases of intermittent fever, in doses of from ten to twenty grains, with success, and in 1854 he treated six other cases exclusively with cedron, with the following results: "Four with cure, prompt and permanent; one passed from my observation before the result was known, and the other is still under observation, having resisted emetics, quinine and beberine previous to consulting me. From

* See also an able article by DR. J. C. HUTCHISON, on Common Salt in Intermittent Fever, *New York Jour. Med.*, March, 1854.

these results, and those obtained in neuralgic cases, which we think are unnecessary to detail, there can hardly arise a doubt but that the cotyledons of the simaba-cedron possess decided anti-periodic properties. And in this belief we do not stand alone. Dr. Cespèdes, of Bogota, M. Herran, of France, Dr. P. Smith, of San Francisco, Cal., and Dr. Magrath, of Jamaica, W. I., have each testified to its decided medicinal virtues in this respect."

The following, according to Dr. Purple, are among some of the conclusions drawn from the medicinal use of the simaba-cedron:—"That it possesses anti-periodic properties, and is therefore applicable in the treatment of periodic diseases—that it is less likely than quinine to produce the aggregate of encephalic and neuropathic phenomena induced by over doses—that as a remedy in intermittent fever it possesses properties, in many respects, equal to quinine, and is equally adapted to the curation of this disease—that it possesses marked tonic properties, and deserves a prominent place in the classification of the Materia Medica—that, should a demand arise for its use in medicine, it is believed it will be found not difficult to obtain a supply in quantity sufficient to afford it at a much less price than quinine. This, surely, is a desideratum."

I have thus given some authorities for the assertion that large doses of quinine have sometimes been attended with deleterious and even fatal effects, and mentioned several substitutes which have been employed by many of the most eminent men in the profession, successfully, in intermittent fever. This investigation might be carried to a much greater extent; but I leave it to abler hands. I hope it will stimulate others to prosecute the inquiry, and that the results of their observations will be the discovery of other remedies, equally efficacious, less dangerous, and less expensive than the sulphate of quinine, as now often administered. The subject is surely worthy of the most attentive consideration.

ART. VI.—*On the Use of Thuya Occidentalis, (Arbor Vitæ,) in the Treatment of Cancer.*—By J. R. LEAMING, M. D., Physician to the Northern Dispensary, N. Y.

ABOUT the first of July, 1854, my attention was called to a little girl, not quite three years old, who had received a slight injury of the hand, as was supposed, from a fall. I directed the application of cold water, and the swelling and the soreness disappeared. On the 12th of September I was called to see the child, and found a purple tumor, not distinctly defined, occupying and complicating the flexor muscles of the thumb. The veins leading to the tumor were enlarged and tortuous. The tumor itself was not tender, and the bone was not implicated. It had the peculiar elastic feel of erectile tumor. I learned that it commenced growing about two weeks previously. I informed the parents of my fears respecting the malignant nature of the disease, and requested a consultation. Accordingly the next day Dr. W. H. Van Buren saw the case with me, and confirmed my diagnosis. On the 20th of September, Dr. Van Buren met me again, and explored the tumor with a grooved needle. A glutinous matter was obtained, indicating that the disease was of the colloid variety. The treatment directed was small doses of hydrarg. bichlor in tr. cinchon. co., the hand to be painted every day with tr. iodine and poulticed.

The disease rapidly increased, attacking the carpal and meta-carpal bones, the back of the hand became thickened and hard, and the veins large and tortuous. An abscess formed where the exploration was made and discharged healthy pus. Still the tumor increased in size.

Being informed by a medical friend of the successful employment of thuya occidentalis in a case of rapidly-developed fungus-hæmatodes of the eye—the tumor gradually subsiding under its use, and returning on its intermission, but finally completely disappearing on persisting in the employment of the remedy,—I determined to resort to it in this case. It was of course a forlorn hope; but the character of the disease warranted any course of treatment which offered

a shadow of success. The child was accordingly put upon the use of a tincture of the leaves of this tree. In two weeks the appearance of the hand was changed; the tumor had not increased in size. In two weeks more, the disease was evidently subsiding, the tumor was smaller, the back of the hand was not so thick and hard, and the veins were not so large.

On the 29th of October, the father of the child was attacked with severe inflammatory rheumatism of the right knee-joint. The disease resisted the treatment, only partial relief being obtained from hydrarg. mass and ext. conii, tr. colchic., sem. potass., iodid., potass nitrat., etc., till the 10th of November, when the pain was relieved. At four o'clock, on the morning of the 11th, I was called to see the patient, and found that he had vomited half-a-pint of blood; soon after I arrived, he vomited more, making in all about a quart of moderately fresh looking blood. I gave him fifteen drops of spts. terebinth, and sent a messenger for Dr. Geo. P. Cammann to meet me in consultation. Dr. C. soon arrived, and carefully examined the patient. We agreed upon the following diagnosis; that there was an old trouble of the liver, most probably cirrhosis, and that the hemorrhage was from the portal circulation induced by this biliary trouble.

For a few days the patient took nothing but mulled wine and beef-tea. Altered blood passed from the bowels twenty-four hours. Forty-eight hours after the first hemorrhage he vomited a small quantity of blood, and passed altered blood for thirty-six hours afterward. The bowels were tympanitic, pulse one hundred and ten, skin moist, tongue furred. The patient presented a yellowish, waxy appearance. He was directed to take hydrarg. sub. mur. one grain, and ext. taraxici twenty grains, every day or every other day, for the purpose of bringing the system gradually under the influence of the mercurial. Healthy bile was obtained in the evacuations, but there was no improvement in the patient's health. At this time, reflecting upon the case, I came to the conclusion that there was malignant disease connected with the liver. My

reasons were, the appearance of the patient, the history of the case, and the history of the patient's family. His mother died when he was a child. Three years before her death a purple tumor appeared on her hand. It resisted treatment, and the hand was amputated. Six months before her death she vomited blood, and died of some internal disease. His mother's brother died of cancer of the lip. His sister vomited blood and died of some internal disease. His little daughter is under treatment for cancer of the hand.

At my next meeting with Dr. Cammann, I stated my earnest convictions respecting the malignant nature of the disease connected with the liver. Dr. Cammann believed the disease was of long standing and of a very serious nature, but that we needed further evidence to warrant us in making up a certain diagnosis.

On the 30th of November, Dr. Valentine Mott saw the patient with me in consultation. The patient at this time was very tympanitic; there was also a small quantity of fluid in the peritoneal cavity. The heart was pushed up from its normal position, so that the impulse was felt above the nipple. He was weak, tongue furred, pulse one hundred and ten, skin moist, and urine scanty.

After examining the patient and hearing the history of the case and of the family from me, Dr. Mott's diagnosis was cirrhosis of the liver with a suspicion of malignant disease. I commenced giving the thuya in tinct. made in the following manner: The leaves and small twigs were crowded into a jar and then covered with alcohol; half a teaspoonful every three hours. The rheumatism had entirely subsided after the hemorrhage; still there was no improvement in the patient's health.

On the 6th of December, Dr. Willard Parker saw the patient in consultation with me. After a careful personal examination, and hearing the history of the case and of the family from me, his diagnosis was cirrhosis of the liver and suspicion of cancerous disease.

The patient seemed to be rapidly sinking. I increased

the dose of the thuya to two teaspoonfuls every three hours, and gave in addition a mixture composed of hydrochlorate of ammonia and chlorate of potass., each ʒi., and cinnamon water ʒvi., a tablespoonful every hour or two. He seemed to improve almost immediately, his appetite became good, and he gained strength rapidly. A week after Dr. Parker saw him he was able to walk into an adjoining room and sit there most of the day. The 12th of December, I found a small tumor in the left side on a line with the heart, just under the ribs. In giving it an impulse it would leave the hand and return to it, giving the sensation of the fœtus in ballotment. The tumor grew rapidly, and I could notice an increase in size at each examination.

On the 18th of December, Dr. Cammann made a careful examination of the tumor. It rested upon the kidneys, and evidently was the cause of the displacement of the heart. It extended over toward the right side beyond the median line and downward almost to the umbilicus.

There was more urine secreted than there had been; still the dropsy gradually increased. A great variety of active diuretics had been used without any beneficial effect; indeed they all seemed to do harm, consequently he was confined to the thuya and mixture of hydrochlorate of ammonia and chlorate of potash.

On the 4th of January, the dropsy having increased so much, it was decided to relieve the patient by tapping. On the 6th of January, at the patient's request, Dr. W. H. Van Buren was called and drew off thirteen quarts of amber-colored fluid highly charged with albumen. In a week he was able to walk about and ride out, driving an open carriage several miles into the country with enjoyment and benefit. With the exception of the physical inconvenience of the tumor lying on the kidneys and the portal veins, the patient seemed to enjoy better health than he had done for some years.

The dropsy rapidly returned, and tapping was necessary again in two weeks. Dr. Van Buren performed this opera-

tion five times at intervals of two weeks. After the fifth tapping extensive peritoneal inflammation set in, and the patient died on the 5th of March.

A post-mortem examination was not allowed. This is much to be regretted, as it would have settled some points of interest—the malignancy of the tumor, its connection with the left lobe of the liver, and whether the extensive peritoneal inflammation was caused by the escape of matter from the tumor into the peritoneal cavity. Of the first two points there can be scarcely any doubt; still it would have been a satisfaction to have had the question settled beyond all cavil. The third point is quite probable from the sudden onset of the peritonitis.

The most important fact in the history of this case is the decided benefit received from the use of the thuya and the mixture of hydrochlorate of ammonia and chlorate of potash. Immediately after commencing the use of these remedies the stomach and liver resumed their natural functions, and the symptoms of cirrhosis disappeared. The action of the kidneys was also much improved.

During the early part of the father's severe illness, the child was neglected and the thuya discontinued. The hand became worse, and the disease again attacked the carpal bones. When the thuya was prepared for the father, the child again commenced its use, taking fifteen drops every two or three hours. In a short time its benefit was quite perceptible. At the present time only a trace of the disease remains, and the remedy will be persisted in till the child is well. The hand will remain permanently injured and probably will be atrophied.

Thuya occidentalis, or arbor vitæ, belongs to the pine tribe (coniferæ), is a native of this country, and is cultivated in our gardens. The leaves are the parts used medicinally. They are described in the *U. S. Dispensatory* as having an "agreeable balsamic odor, especially when rubbed, and a strong, balsamic, camphorous, bitter taste."

The thuya has long been used for medicinal purposes, but

with no settled opinions in regard to its therapeutic properties. It has thus been employed in intermittent fever, scurvy, rheumatism, and as a stimulant, diuretic, diaphoretic, and vermifuge. In the *Revue de Therapeut.* (Jan. 1st, 1855), there is a notice of the thuya having been recently employed by a Hungarian physician in the treatment of venereal excrescences which had resisted mercury, cauterization, and excision. He employed the tincture, using three pints of the leaves to six of rectified alcohol, applying it from time to time with a brush. The excrescences rapidly diminished in volume, and a radical cure is reported to have been obtained in five days.

Thuya occidentalis is a new remedy for cancer. There have been a great many new remedies for this dreadful disease before, which upon trial have proved utterly valueless; so it may be with this. Two or three recoveries do not prove the value of a remedy. These cases are related that it may receive a more extensive trial; and if others should find it in a large proportion of cases as beneficial as it has been in the cases I have related, it is one of the greatest boons conferred upon mankind.

ART. VII.—*Statistical Observations on Wounds of the Heart, and on their Relations to Forensic Medicine, with a table of forty-two recorded Cases.* By SAMUEL S. PURPLE, M. D.

THERE is probably no opinion relating to medicine, more deeply rooted in the public and perhaps professional mind, than that which regards all wounds of the heart necessarily, and in most cases immediately fatal. In order to ascertain how far this opinion is or is not founded on fact, we have taken no small degree of pains to collect and arrange in the following tables a large number of authenticated instances of this class of injuries. In most of the recorded cases of this accident, death, though not immediately occurring, has sooner or later followed the injury. To what cause or combination of causes the delay of the fatal result in a large majority of these cases may be attributed, is a question of

deep interest to the physician and medical jurist. That punctured, incised, and even gun-shot wounds of the heart are not necessarily mortal, is fairly demonstrated in the collection of facts here presented; for in more than one case the recipient of such wounds has lived for months, and in two, even years after such injuries, and finally died of some other disease. Vide cases 1, 2, 11 and 34.

The ability of the heart to perform its functions, in many cases after the receipt of severe wounds complicated with the presence of foreign bodies in the organ, is truly surprising. In Cases 1, 10, 29, 30, of our collection, the facts bearing upon this point are almost astounding in their character. In the case of Dr. Randal, (Case 1,) three shots were driven through and found lying loose in the cavity of the right ventricle, and two in the cavity of the right auricle; the wounds caused thereby having completely cicatrized; the boy lived sixty-seven days, and apparently died of the results of inflammation of the lungs. In Case 10, a portion "as large as a full-sized writing quill" of the stock of the gun that had burst, was found fixed in the middle third of the left ventricle, where it had remained forty-seven days. Erysipelas of the leg occurring on the forty-second day, resulted in death five days after its supervention. The case of Dr. Constantin (Case 29) is in many particulars equally remarkable. The patient in a fit of insanity cut and stabbed himself in a horrible manner over the face and chest, particularly the left side. Amongst the wounds inflicted were two particularly conspicuous on account of their large size; one, seven or eight inches in length, was placed between the fourth and fifth ribs of the right side about three inches from their sternal articulation. The other, fourteen lines in size, occupied the space between the xyphoid cartilage and the costal cartilages on the left side; at first syncope ensued, but this lasted for a short time only. After the wounds had been attentively examined they were dressed by adhesive plaster, etc., and the patient was placed in bed and strict tranquillity of mind and body enjoined. The pulse was found now to be

regular; there was no cough, and the respiration was free. The following night was passed calmly; the respiration, however, was a little impeded; the pulse was still regular and there was no cough. The following day there was but little change in the patient's condition, except, perhaps, augmented thirst. The third day the pulse retained its regularity, but in the evening the patient complained, at intervals, of sharp pain in the right hypochondrium, frequent cough and increased thirst. Twelve leeches applied to the right side the morning of the fourth day; the pain still remaining, gradually extended itself over the whole hepatic region, the pulse wiry and small, and embarrassment of respiration increased; six leeches to the side. The difficulty of respiration increased rapidly, insensibility came on, and at 5 o'clock, P. M., the patient expired four days after injury. On dissection, it was perceived with extraordinary surprise, that the heart was traversed from side to side by a paper scraper of ebony, having a straight handle; the right ventricle and auricle were both wounded. It is difficult to conceive how the wounding instrument could be lodged so completely in the posterior part of the heart. The following is Dr. Constantin's explanation, which renders this circumstance intelligible: "It is necessary," says he, "to suppose that the weapon was plunged into the chest at the moment that the heart's point was elevated, and that the patient employed a tile, which was found near him, covered with blood, to drive the instrument thus deeply into the viscus."

While engaged in the collection of these materials, numerous cases were found where foreign bodies had been lodged in the heart for a long time, without any wound of this viscus; two of these cases have been considered of sufficient interest to deserve a place in these tables. They have accordingly been appended to them. In Case 42, a soldier received a gun-shot wound near the left axilla, from which he died ten weeks after. On dissection the ball was found in the cavity of the left ventricle, and firmly bound down by the cordæ tendineæ and columnæ carnæ. No cicatrix

on the heart could be found, and the presumption was that the ball must have perforated the pulmonary vein, and thus passed into the left auricle, and ultimately into the ventricle. But Case 41 is still more remarkable, for in this case a stick three and one half inches long, and one half inch in diameter, was found in the cavity of the right ventricle; the patient lived thirty-seven days. In what manner this foreign body found its way into this cavity it is difficult to say.

In the present compilation we have included no cases of the smaller variety of punctured wounds of the heart. However innocuous these may appear to be from the numerous experiments of acupuncturation performed by Russian surgeons, a dangerous result is quite certain to follow if the instrument which produced the wound is allowed to remain impacted in the organ. A case illustrating this point is reported by Dr. Graves.* A man, for the purpose of self-destruction, cut his throat, previous to which, however, he pushed a large "darning needle" between the fifth and sixth ribs, and directly over the heart. The person having confessed the fact, and Dr. Graves having observed a puncture at the point indicated, an incision was made down to the pleura, and afterward through it, when the needle was seen fixed in the heart. When removed by the forceps, a forcible stream of blood followed. The patient lived eight days after its removal, dying with well-marked pleurisy. On dissection the left ventricle was found to have been perforated by the needle, and in the muscular wall of this ventricle a small cyst containing pus. A somewhat similar case is reported by Dr. O'Connor,† in which suicide was attempted by introducing a needle 3½ inches in length between the fifth and sixth ribs, over the region of the heart; by incision and the use of a watchmaker's pliers, its removal was effected, and the patient recovered, not, however, without the most prompt and efficient antiphlogistic treatment. He lived upward of ten years. The case observed by M.

* *The Annalist.* Vol. 2, p. 50, New York, 1847–8.

† *Medical Gazette,* (London). Vol. 17, p. 82.

Trelat* is also worthy of notice here; a young woman in a fit of despondency plunged a needle into the region of the heart, between the sixth and seventh ribs. She immediately declared that she was about to die. On examination the presence of the foreign body could not be detected; and there was complete absence of any heart disorder. On the third day she complained "that a large needle was allowed to remain in her heart." An incision was now made at the point indicated, and where there was a puncture, and its removal was effected by a pair of dissecting forceps. The needle, which was two inches in length, presented a somewhat corroded appearance, and had been plunged perpendicularly into the heart. The patient recovered.

A curious circumstance attendant upon gun-shot wounds of the heart is that in which the ball causing the wound has penetrated the walls of the chest, and produces a perforation in one or both ventricles, but there is no corresponding wound in the pericardium. A case of this character is reported by Professor Holmes,† of Montreal. The patient, a young man, lived but a short time after the receipt of the injury. On dissection, the anterior wall of the right ventricle contained a transverse linear opening, sufficiently large to admit the finger. Corresponding to this opening in the heart was observed a bloody echymosed condition of the cellular substance lying on the pericardium, which led to the inference that the pericardium had been driven before the ball and into the heart while this organ was in the act of contraction, its fibers being hard and rigid from their muscular contraction. The ball was found loose in the cavity of the pleura. Morgagni‡ mentions a case as quoted from Boirellus, where a man died four hours after a gun-shot wound in the breast. On inspection after death, the

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* *Southern Medical and Surgical Journal* (N. S.), vol. ii., p. 250, from *Bulletin Generale de Therapeutique.*

† *British Amer. Jour. of Med. and Phys. Sci.*, vol. i., p. 227. Montreal, 1845–6

‡ *Seats and Causes of Disease.* By MORGAGNI, translated by ALEXANDER. London, 1769, vol. iii., p. 193.

pericardium was found entire, but distended with blood, and a wound completely through the right ventricle. The bullet was found in the cavity of the pleura. He supposes that the ventricle was in a state of dilatation at the instant the percussion occurred.

We have said that the cause of delay in the fatal termination of wounds of the heart is a question of deep interest to the physician and medical jurist, for upon this point, in a great measure, rests not only the question of their curability, but also their forensic relations. What the circumstances are which tend to increase their fatality are worthy of careful consideration. That variations in character, size, situation, and complications influence such a result is certain. But these particulars do not combine all that enters into the circumstances of their curability; the state of the patient's health before he receives the injury, and the treatment pursued in the subsequent management of the case, have an important bearing upon the result. Perhaps we need no better explanation of the force of this remark, than the numerous facts furnished by wounds of the chest in general, and those of the lungs in particular. In military practice these wounds, although conceded to be in a high degree dangerous, are by no means regarded as necessarily fatal. Repeated instances are furnished by almost every surgeon in active service, of entire recovery from such wounds—not however generally without the most active treatment. It is upon this latter point in some of the cases here reported, in the opinion of the reporters themselves, that the want of success depended. Let us therefore proceed to the answer of the question, to what cause can we attribute the great difference in the duration in life in the cases here collated? This question we have no doubt has already arisen in the mind of every reader. A satisfactory answer to it would, we believe, throw much light upon the all-important question of the curability of heart wounds. In Case 19, where death occurred immediately on the receipt of the wound, it is clearly manifest that it was due to the extensive character of the

wound, the number of parts injured, and the immediate distention of the pericardium with blood to complete fullness.

In Cases 13, 14, 15, 22, and 26, it would appear to have been due to the formation of a coagulum in the wound serving as a plug; while in Cases 11 and 17, it is almost certain that it was due to union by first intention, and death, that followed, was the direct result of inflammatory complications. The character and direction of the wound may also contribute to the delay; for if the wound be an incised one, and its long diameter is parallel with the external fibers of the heart, the formation of a clot will be more certain. The want of parallelism in the fibers of the heart evidently favors the formation of clot. This view is especially insisted upon by M. Dupuytren, whose writings have more fully made known the possibility of the curability of small penetrating or punctured wounds of the heart.

By some, instant death is attributed to the sudden loss of blood exhausting the heart; by others, as in Cases 8, 17, 19, 23, 25, and 38, to the compression this organ undergoes from the accumulation of blood in the pericardium—suspending at once the heart's functions. In those cases where the hemorrhage is profuse, the result must be in part due to such causes. This explanation is still further supported by the facts furnished in cases of sudden rupture of the heart; here death in most cases is immediate. But these alone do not afford an explanation of the cause of sudden death in all cases. The study of these cases has led us to believe that the concussion or shock of the organ has more to do with sudden death, than any other one cause. A careful examination of all cases of injury of the heart, shows that the primary symptoms are combined in the presence of shock; the suspension of the movements of the organ, the cold clammy sweat, the death-like pallor, syncope, and the suspension of consciousness, all spring directly from the shock, and are present in a large majority of gun-shot, incised, and the larger punctured wounds. In those cases in which the patient survives the shock, and reaction super-

venes, death occurs from other causes. Here it is due mainly to the occurrence of inflammation, in some one or other of its forms, consequent upon the injury done to the pericardium or lungs. In Cases 1, 4, 9, 18, 26, 39, etc., this was most clearly the case.

Symptoms—If we except those punctured wounds caused by needles and the like kind of instruments, the symptoms which arise from gun-shot, incised, and the larger punctured wounds of the heart, vary but little in character. On the receipt of injury we have generally hemorrhage, weakness, syncope, great paleness, great anxiety and oppression, cold sweat, vomiting, with sooner or later, not unfrequently, complete collapse. The breathing is short and gasping, the pulse feeble and intermittent, the heart's action scarcely, if at all, perceptible. In the course of from one to eight hours, signs of reaction set in; not unfrequently after vomiting the dyspnœa and cardiac oppression is in a measure relieved; then palpitations not unfrequently arise with a peculiar trembling of the organ, with irregular pulse. The diagnosis of wounds of the heart is decidedly illusive. M. Jobert* (de Lamballe) is of the opinion, however, that he has discovered a pathognomonic sign. The following are his conclusions in regard to their diagnosis: 1st. That penetrating wounds of the heart give rise to a peculiar sound, resembling aneurismal varix. 2d. That they are accompanied with a constant convulsive affection of the muscular fibers of the heart. 3d. That the sound indicated above ceases as soon as a clot closes the orifice of the wound. 4th. That the muscular disorder of the heart continues after the formation of the clot. Cases 30, 31, 32, 33, are the only cases in our collection in which the sound resembling varicose aneurism, mentioned in the first conclusion, was noted. The character of the hemorrhage, when occurring externally, may prove of considerable assistance in forming a correct diagnosis; and this will prove particularly so if it issues per saltum,

* *Archives General de Medicine*, Sept., 1839.

or in interrupted jets, and is isochronous with the beats of the heart. Our researches convince us that the most clear diagnosis which we can arrive at from the collation of the symptoms in this collection can be at best but presumptive.

We have said that the diagnosis of these wounds is uncertain. For the elucidation of this subject we have instituted a rigid search into the reported symptoms of every case here collated, but have failed to discover any rational symptom, or combination of symptoms, which will render certain their diagnosis. It is this fact that has led to the exclusion from the table of all cases of reported recovery where the rational symptoms alone were relied upon by the reporters for the belief that such a wound had occurred. In so doing there is a probable reason that we have excluded cases of actual recovery from the collection. The case of Dr. Lavender* may be such a case. A student, aged 19, in good health, was stabbed by a knife, the blade of which, three inches in length, and three fourths of an inch in width, entered the left side, between the fourth and fifth ribs, at the cartilaginous extremity. In five minutes after the injury Dr. L. found him vomiting, "with jaws rather rigid, cold sweat on his face, eyes drawn back, respiration irregular, interrupted, and terminating in deep sighs; action of heart entirely suspended; from the wound was flowing venous blood in a continuous stream; not less than a gallon of blood was lost." The patient was placed upon his back, and towels dipped in cold water were dashed over his chest, camphor sprinkled in his face, and free ventilation obtained. The flow of blood stopped instantly; the breathing, however, continued oppressed, interrupted, and somewhat stertorous. Five minutes after a slight flutter was felt in the heart, and by the palm of the hand, for a minute or more at irregular intervals, when pulsation became perceptible. Four hours after reaction began to appear; he was exceedingly restless, and complained of intense suffering; pulse 120, and inter-

* *Proceedings of the Medical Association of the State of Alabama for* 1850. Mobile, Ala., 1851. 8vo., p. 104.

mitting; respiration interrupted. For the next three hours, from 12 to 3, A. M., but little hope was entertained of his living till daylight; his restlessness, however, was relieved by the use of full doses of morphine. The subsequent progress for thirty days is carefully reported; the treatment, suffice it to say, was, throughout, antiphlogistic, mild mercurials, etc.; while absolute rest, in the horizontal position, was maintained for sixteen days, during which time the patient's urine was removed by means of the catheter. The patient's diet was principally water-gruel and strawberries. One month after the receipt of the injury he was able to be removed to his home; but for about two weeks there existed a distinct bellows sound in the heart, whose swell was not synchronous with arterial pulsation. This sound grew less and less distinct until it was entirely lost. Dr. Lavender believes that the right ventricle of the heart was opened, and as such reports the case. In his comments upon Dr. Trugien's case (Case 17 of our collection), he expresses the opinion that the liberal diet and improper exercise of the patient was the cause of the fatal termination. "Had this patient (says he) been confined on his back, and restricted to water-gruel for twenty days, he possibly might have lived."

Treatment.—The general principles which guide the surgeon in the treatment of wounds of the chest, apply with equal force to all wounds of the heart. Too much stress must not be laid on the apparent necessity which exists to arrest syncope, and prevent the tendency to collapse, by a free resort to stimulants. The cases before us show conclusively that there is less danger of collapse, and more of reaction and the consecutive fever. As the chances of success are much increased by the formation of a clot in the wound, immediate steps should be taken to close the external wound by adhesive plaster and appropriate bandages, and these should only be removed in case there is reason to believe that the dyspnœa and sense of suffocation are greatly increased by restraining the external hemorrhage. In the

case of the Duke de Berry this course (the removal of the dresses to allow of the exit of the accumulated blood) was pursued by M. Dupuytren, and Steifesand attributes to it the quicker or more immediately fatal termination of the case.

When reaction becomes established, the great indication is to control its severity, which may be done by bleeding and strict antiphlogistic treatment. But this can only diminish the quantity of the blood, and, in a measure, moderate the action of the heart. To diminish the heart's action is an important point in the treatment; and, while we enjoin perfect rest on the part of the patient, the fact that we possess in the veratrum viride a powerful and reliable agent for controlling the heart's action, should not be lost sight of. That the severe reaction which frequently follows this class of injuries may be judiciously controlled by this remedy we have every reason, *a priori*, to believe. In the administration of it, however, owing to its nauseating and powerful depressing effects, caution should be used and its effects carefully watched. A moderate mercurialization of the system should also be instituted as a safeguard to the inflammatory complications which frequently arise, and which, when established, increase in a tenfold degree the mortality of these wounds.

Rest, absolute rest, is an important and powerful auxiliary in the treatment of this class of wounds. In a medico-legal point of view, to say nothing of the ethico-morale of the act, it will not do for the surgeon to become deceived by the temporary calm which very frequently follows the first reaction. The least effort on the part of the patient may be followed by fatal syncope. Cases 17, 18, 35 and 36 are forcible illustrations of the truth of this remark. In the first of these cases (Case 17), on the fifth day the patient was allowed to walk about; and on the following day, while in the act of doing so, sudden and fatal syncope intervened. In the last case (36), the patient was allowed to resume his attendance at school, and, " three weeks and four days from

the accident, he was taken with a sudden and fatal syncope"; while in the second and third cases (20 and 34), the patients both expired in the act of defecation.

The supervention of carditis, pericarditis, or other inflammatory complications of wounds of the heart, must be watched for, and, if possible, anticipated by appropriate treatment. In gun-shot and severe punctured wounds, such as we have here collated, the inflammatory complications frequently arise; and so insidious are they in their progress that the surgeon is, to say the least, occasionally thrown off his guard, until the citadel of life becomes nearly or quite taken. When the collapse and nervous depression which succeeds this class of wounds passes off, not unfrequently symptoms of pericarditis supervenes. In some cases the symptoms may not become fully manifest until the second day, as in Case 4, or the ninth day, as in Case 9. But whether they arise sooner or later, they should, if possible, be anticipated, and the surgeon will do well to institute daily examinations, in order that he may detect the first beginning of the disease. The physical signs by which we may detect the early rise of this affection are friction sounds with special precordial dullness, and twisting upward of the apex of the heart. The friction sound, when fully developed, may be considered pathognomonic. In a case of traumatic pericarditis supervening on a gun-shot wound, Dr. Stokes discovered a peculiar friction sound, which can be best described by stating that it consisted in the existence of many distinct points of intense friction sound, each of which, though extremely circumscribed, conveyed the impression of a resisting or cartilaginous deposit. These signs continued for several days, during which the friction phenomena subsided at certain points and appeared at others. There was no constitutional suffering, and but little, if any, local distress. The patient recovered.* The treatment best calculated to ward off the

* *The Diseases of the Heart and Aorta.* By WILLIAM STOKES, M. D. Dublin, 1854. p. 81.

danger of pericardial inflammation, there is no doubt consists in judicious blood-letting, followed, or perhaps best preceded, by well-directed efforts toward a speedy mercurialization of the system. In the event of effusion following pericarditis, blisters must be resorted to, and mild mercurials must be continued. Should medical treatment prove of no avail in removing the fluid, and especially should threatened suffocation exist, surgical treatment must be called in, and the operation of tapping the pericardium performed. This course, suggested by Senac and practiced by Delault, and more recently by Schuh, will be found advisable. In two cases given by Dr. Kainwagen, immediate relief followed the operation, and in one a permanent cure; in this case three and a half pints of fluid were drawn off.

Prognosis.—In regard to the prognosis of wounds of the heart, we may safely conclude, with Mr. Baird, that from the cases here reported and similar recorded facts, in a general manner, that *wounds of the heart, although always dangerous, are not all necessarily mortal; that in some cases, hopes of recovery may be entertained—the more so if the wound has not penetrated deeply, or if the symptoms of consecutive inflammation are of a moderate character.*

Forensic Relations.—The legal relations of the practitioner in the management of wounds of the heart are important, more so perhaps than in most other wounds, from the fact of the professional as well as popular belief in their necessary and general immediate fatality. The fact of the existence of indubitable instances of recovery from such wounds, imposes upon the surgeon, however, a severe responsibility; while the possibility that the patient may die as a consequence of inflammation, uncontrolled, and perhaps unsuspected, tends to augment it still more. In order to avert such responsibility, the treatment of wounds of the heart must be judicious. In other words, there must be no improper, neither want of proper, treatment. For if the treatment instituted be faulty—if the wound in the heart be cicatrized as in Case 34—and the patient die of the con-

sequences of another difficulty improperly treated, an issue may be set up extremely unfavorable to the professional character of the surgeon. In a case cited by Dr. Neurohr,* we have the point of improper treatment strongly illustrated. A man received a wound one inch long and three lines broad, which went through the parieties of the chest, to the left of the sternum, through the cartilaginous portion of the fourth ribs, the pleura, a part of the left lung, the pericardium, and inflicted a wound in the right ventricle one inch long and a line in depth: the patient lived ten days. During his sickness he had difficult and anxious breathing, pain, stitches in the breast, small frequent pulse, strong fever, and great restlessness. The treatment throughout was faulty; no bleeding or antiphlogistic remedies, but on the contrary, instead of these, in three days from receiving the wound, nourishing diet, bark internally, cataplasms of wine and aromatic herbs were resorted to. The patient, as before stated, died on the tenth day, experiencing great restlessness, quiet delirium, great dyspnœa, intermitting pulse. The patient died of paralysis of the lungs and heart, from effusion into the pericardium. The wound of the heart was held to be not necessarily fatal, and the treatment vicious and faulty.

The following case contrasts strongly with the foregoing. A soldier wounded himself with a knife in the left side, at the union of the fifth and sixth ribs with their cartilages. On examination after dilatation of the wound, the lung and pericardium were found to be wounded, and there existed a superficial wound of the apex of the heart six lines long. It could be perceived, by the finger, how by the systolic action the heart lengthened, and touched with its somewhat outward bowed apex the sixth rib, and by the distole it shortened itself. The motions of the heart appeared to resemble the screw-like movements of a spiral spring. While the heart contracted itself, the arteries dilated themselves; for

* *Judicial Inquiry upon a Person who died after ten Days, from a Wound of the Heart.* By G. A. NEUROHR, in *Henkes Zeitschrift*, 1825.

when the point of the heart touched the finger the radialis dilated itself. When after four or five beats the pulse intermitted, so was the systole of the heart labored and trembling. The treatment instituted in this case was free bleeding, rest, and a strictly antiphlogistic course. The patient permanently recovered.*

Of this fact—in regard to the legal bearings of this class of wounds—there can be no doubt, that, when death follows from inflammation of the heart or its coverings, when, in spite of the best treatment, the inflammation complicating such wounds proceeds uncontrollably and has a fatal termination, *the wound is* to be pronounced *as necessarily* fatal. But dissection must then show the results of inflammation and the absence of other quicker operating cases. But on the other hand, if inflammation arise in the lungs or pericardium, after heart wounds, and if death follow after manifestly deficient or improper treatment, the wound of the pericardium and heart, having perfectly cicatrized, and no other fatal cause of such result become manifest on dissection, *the wound should not be held as absolutely fatal.* And, in the language of a writer in the *Medicinische Zeitung* "they can only be pronounced as necessarily fatal when, notwithstanding the most proper treatment, violent inflammation comes on, which terminates in death. In individuals who are much predisposed to inflammation, in cases where a foreign body remains, etc., but even, also, in the last case, where foreign bodies remain, healing is yet possible, as individual examples have shown. But those wounds ought not to be pronounced as necessarily fatal, where the treatment was manifestly bad, when, not the inflammation of the heart, but other circumstances have been the cause of death."

Under what circumstances, then, ought we to declare a wound of the heart to be fatal in a legal point of view? On the solution of this question as regards wounds in general much has been written, and definite conclusions have been, in a meas-

* OLLENROTH in *Medical Times*, vol. vii., p. 77, from SHMUCKER'S *Vermischet Chir. Scriften*, Bd. 11.

ure, arrived at. It is plain to be seen that all wounds of the heart in which death immediately follows must be pronounced as fatal, whether death be caused by hemorrhage, or from pressure upon the heart, or from shock to the nervous system. But it is in those cases where death has followed later, say after several days, that we have to inquire carefully into the mode in which it occurred, in order to render definite our opinion of the exact agent by which the fatal result has been produced.

If death follow severe and exhausting external or internal secondary hemorrhage the wound is to be pronounced fatal; this result may come on as a consequence of the removal of the coagulum which served as a plug to the wound. But, in such a case, if the extravasation of blood be internal, dissection must show the fact.

If death occur from suffocation, as evinced by dyspnœa and great difficulty of respiration, and dissection show a healed heart-wound, but the chest filled with extravasated blood, and paracentesis has not been attempted, then we cannot declare the wound to have been necessarily fatal.

If death occur from extensive pericarditis followed by effusion, and dissection show a healed heart-wound, as also a healed wound of the pericardium, and little if any attempt has been made to arrest the pericarditis, or to remove the effusion, then, we ought not to pronounce such a wound to be fatal: more especially if the patient be one possessed of a vigorous constitution, and capable of bearing efficient bleeding, and a thorough antiphlogistic treatment.

Again, if death occur from inflammatory complications, other than those of the heart and its investments, and if such complications be those that in a majority of instances are curable, and dissection show that these complications were in a good degree a probable cause of death, the wound ought not to be held as fatal.

In case of the supervention of a disease, which of itself may be mortal, upon wound of the heart, and dissection show a healed heart-wound—such wound evidently must

not be held fatal. Case 34 clearly illustrates this point. The patient received a bayonet wound which penetrated into the cavity of the right ventricle. Faintness occurred and life appears to have been preserved by it. The patient, after his injury, remained concealed under an old stair-case for five days, without nourishment, and exposed to severe cold. He was admitted into hospital and died, on the fifteenth day after the receipt of injury, from mortification of the lower extremities consequent on the exposure. On dissection, the wound of the heart, pericardium, and lungs were found completely cicatrized, and there existed no signs of effusion in any of the surrounding parts. Most assuredly it would be wrong to hold this wound of the heart as fatal.

And, finally, if the treatment of a supervening disease be proved to be manifestly faulty, although the wound in the heart be not entirely healed, it must not be held that the wound is fatal.

The following table it will be seen comprises forty cases of severe wounds of the heart, and two in which foreign bodies of considerable size were lodged in the cavity of a ventricle, without wound of heart, all of which are so fully reported that we have not hesitated to regard them as authentic, and therefore to admit them into it. We do not claim that it contains all the recently-reported cases of wound of the heart, neither all the reported cases of recovery from such wounds; for Fordéré, Consbruch, Meglin, Sanson and others have cited cases where penetrating wounds of the heart have been afterward found cicatrized; but the mere allusion to such cases, in the absence of all the attendant facts, has led us to exclude them from the present collection. The case of M. Latour, we believe to be (Case 2) the one reported by M. Fournier.

SEX. AGE.	NATURE OF INJURY.	PRIMARY SYMPTOMS AND PROGRESS.	RESULT.	POST MORTEM APPEARANCES.	REFERENCES.
M. 15 No. 1	Gunshot-wound left side of sternum.	Pulse scarcely perceptible; great difficulty of respiration. On the second day pulse weak and intermittent—syncope, followed by re-action and fever. Emaciated.	Died 67 days after receipt of injury, with hectic symptoms.	Three shot loose in cavity of right ventricle; two in right auricle; cicatrices of wound on surface of heart plainly to be seen; pericardial adhesions. Left lung dense, hard, and not more than ½ natural size.	L. Randal, M. D. Western Journ. Med. and Phys. Sci., Vol. 2., p. 329.
M. No. 2	Gunshot-wound.	Severe hæmorrhage, "and was taken up for dead." Three months after suffered from frequent palpitations, which nearly disappeared after three years.	Died 6 years after of another disease.	Deep cicatrices on chest. Ball found lodged in the right ventricle, near its tip, and resting on the septum medium.	M. Fournier. Cas Rares in Dictionnaire des Sci. Medicales.
M. 41 No. 3	Gunshot-wound to right of sternum, between 3d and 4th ribs.	Pale and pulseless; breathing short and frequent. 36 hours after accident slight re-action came on.	Died 68 hours after receipt of injury.	Right pleural cavity and pericardium filled with blood. Wound in right auricle, near the base of auricular appendage.	Dr. Dawson. Western Lancet, Cincinnati, Vol. 12., p. 14.
M. No. 4	Gunshot-wound to left of sternum, between 6th and 7th ribs.	Vomiting, with cold surface. Scarcely perceptible. Re-action became established 24 hours after injury.	Died 4 days after receipt of wound.	General pericarditis. Wound in right ventricle; also in tricuspid valve. Ball was found in right iliac portion of vena cava ascendens.	R. P. Simmons, M. D. Western Journ. of Med. and Phys. Sci., Vol. 9., p. 382.
M. 25 No. 5	Gunshot-wound to left of sternum, between 2d and 3d ribs.	Syncope; no other primary symptoms reported. 11 days had colliquative diarrhœa, labored respiration, and great restlessness.	Died 14 days after receipt of injury.	Left thorax contained two quarts of sero bloody fluid; pericardium thickened, and contained eight ounces of sero bloody fluid. Wound penetrating right ventricle one inch in length, near origin of pulmonary artery. Ball in cavity of pericardium.	J. H. Fuge. Edinburgh Med. and Surg. Journ., Vol. 14., p. 129.
F. No. 6	Pistolshot - wound left of sternum, between 5th and 6th ribs.	Syncope, collapse: pulse fluttering. Re-action about 12 hours after. Third day pleuro-pneumonia set in.	Died 14 days after injury.	Left pleural cavity filled with bloody serum; left lung hepatized. Ball found lodged in left ventricle, near apex, just beneath endo-cardial membrane.	Dr. R. C. Hopkins. Ohio Med. and Surg. Journ., Vol. 5., p. 210. 1853.
M. No. 7	Gunshot-wound.	Symptoms not reported.	Died 13 days after receipt of injury.	Ball entered right ventricle at root of pulmonary artery, passed through portion of tricuspid valve, and fell into left auricle.	Mr. Fuge. Medical Times, Vol. 10., p. 358.
M. 30 No. 8	Pistol-shot to right of sternum, towards left side.	Primary symptoms not reported. Two hours after had pain in chest, sickness of stomach, and "respiration constricted."	Dies 44 hours after receipt of injury.	Both sides thorax contained each two quarts of blood—eight ounces in pericardium. Right ventricle and pericardium perforated by a ball, which was found in cavity of pericardium.	Editor of Edinburgh Med. and Surg. Journ., Vol. 14. p., 131.
M. 33 No. 9	Pistol-shot to left of sternum, between 5th and 6th ribs.	Raised from the floor, but soon fell senseless; pulse scarcely perceptible; difficult respiration. Four hours after re-action set in. Two days after "heart beat with healthy precision." On ninth day signs of pericarditis.	Died 11 days after receipt of wound.	Lungs and pleura healthy; pericardium distended with bloody serum; heart and pericardium covered with fibrinous exudation. Ball encysted and imbedded to the depth of quarter inch in septum, midway between apex and base of ventricles.	J. M. Carnochan, M. D., American Medical Monthly, Vol. 3., p. 272.
M. 31 No. 10	Gunshot-wound near left nipple.	Fell instantly in syncope; partially revived, pulse feeble, dyspnœa; four hours after re-action took place. On 42d day was attacked with erysipelas of left leg, from which he died.	Died 47 days after receipt of injury from erysipelas.	Pericardium contained five ounces of reddish sanies; a piece of wood, "as large as a full-sized writing quill," transfixed left ventricle and septum, and projected into cavity of right ventricle; endocarditis and softening of heart near apex.	Prof. Malle. Clinique de l'Hôpital d'Instruction de Strasbourg, Paris, 1838; and Brit. and For. Med. Rev., Vol. 10., p. 46.

M. 50 No. 11	Knife-wound in left side.	Primary symptoms not reported. For several months it was thought wound would prove mortal; recovered, but subject to palpitations.	Died 9 years after of intemperance.	Opening in pericardium opposite cicatrix in thoracic parieties; cicatrix in right ventricle extending through its entire thickness.	M. Velpeau. Treatise on Surg. Anatomy. Translated by J. W. Sterling, M. D., New-York 1830, Vol. 1., p. 427.
M. 40 No. 12	Kitchen-knife to left of sternum, between 5th and 6th ribs.	Air escaped from wound; great collapse; heart's action scarcely perceptible. Next day re-action came on; a week after dyspnœa, palpitations and extreme anxiety.	Died 29 days after committing injuries.	Pleura contained two pints bloody serum; pericardial adhesion; wound of anterior surface of right ventricle five lines in length; endo-carditis.	Medico Chirurg. Rev., Vol. 22., p. 453, from Journal Hebdomadare, No. 97.
M. No. 13	Knife-wound.	Syncope; pulse feeble, and at times intermittent; breathing difficult. After a few days improved. On tenth day suddenly fainted, and expired.	Died 10 days after receipt of wound.	Wound in left ventricle penetrating to septum; wound filled with a coagulum.	Dr. Fris. American Journ. of Med. Sci., from Filiatre Sebezio di Napoli. May 1834.
M. 26 No. 14	Knife-wound below mamma.	Countenance pale, followed by several fainting fits; pulse weak and intermittent. On the 10th day "fell into a faint, and expired."	Died on the 10th day after receipt of injury.	Cavity of thorax filled with blood; wound in left ventricle extending through to opposite wall; clot in wound preventing flow of blood.	Revue Médicale for July 1834. Dublin Journ., Vol. 6, p. 320
M. 16 No. 15	Knife-wound to left of sternum, between 4th and 5th ribs.	Walked about for ten minutes, then vomited; pulse small and frequent. Soon became insensible; signs of extravasation of blood into chest.	Died 6 days after receipt of injury.	Chest contained twenty-four ounces of blood; wound in pericardium and left ventricle; pus in pericardium, and clot in wound of ventricle.	M. Boyer. Boston Med. and Surg. Jour., Vol. 2., p. 209, from Journ. Hebdomadare.
M. 21 No. 16	Knife-wound.	Ran up stairs; syncope; pulseless; feeble inspiration.	Died in ½ hour.	Pericardium contained four ounces of blood; wound in same one inch in length. Wound through right ventricle one inch; from apex half inch in length.	Dr. H. G. Clark. American Jour. of Med. Sci., N. S., Vol. 26., p. 85.
M. 21. No. 17	Knife-wound in left precordial region.	Syncope; complete collapse; no radial or cardial pulsation. Moderate re-action followed in six hours. Five days after was walking about. Sudden and fatal syncope.	Died 6 days after receipt of injury.	Wound in pericardium and right and left ventricle; cicatrization of wound in pericardium and right ventricle perfect—left open, and in cavity of pericardium twenty-four ounces of blood.	Dr. Trugien. American Journ. of Med. Sci., N. S., Vol. 20., p. 99.
F. 32 No. 18	Knife-wound in region of heart, between 4th and 5th ribs.	Fell immediately to the ground unconscious; complete collapse; respiration difficult; pulse tremulous intermittent. On 46th day declared cured.	Died 66 days after receipt of inj., while in the act of defecating.	Left thoracic cavity contained eight ounces of a yellow fluid; pericardium inflamed and thickened, and contained two pounds fluid blood; heart atrophied; in left ventricle a conical wound, "large enough to admit easily an ordinary sized pair of pincers."	M. Marini. Gazette Médicale de Paris, and Provincial Med. and Surg. Journ. for 1844, p. 209.
M. 38 No. 19	Knife-wound in left side.	"Instantly fell and never spoke;" scarcely any blood discharged from the wound.	Died immediately on receipt of injury.	Wound of abdomen diaphragm, pericardium and right ventricle of heart, one inch in length; pericardium full of uncoagulated blood.	Wm. Wallace, M. D. The Lancet, (London,) Vol. 2., 1833-4, p. 140.
M. 20 No. 20	Knife-wound to right of sternum, between 3d and 4th ribs.	Profuse hæmorrhage; fainting, followed by great restlessness. Fourth day sudden collapse; respiration difficult; peculiar interrupted metallic tinkling heard over heart.	Died 7 days after injury.	Wound in right auricle, at its junction with ventricle, two lines in diameter. Internal mammary artery divided, and right side of chest filled with dark fluid blood,—three pounds, at least.	Dr. Steifensand. British and Foreign Med. Rev., Vol. 8., p. 255; and Med. Times, V. 6., p. 389, from Casper's Wochenschrift, No. 15. 1838.
M. No. 21	Knife-wound to left of sternum, between 4th and 5th ribs.	Staggered a few steps and fainted; re-action came on after a short time.	Died 4 days after receipt of injury.	Left cavity of chest completely filled with bloody serum; pleura inflamed; intercostal artery divided; heart completely transfixed. Wound half an inch in length.	Dr. W. F. Alexander. Amer. Journ. of Med. Sci., N. S., Vol. 13., p. 245.

M. 30 No. 22	Six wounds in precordial region with sharpened file	Air escaped from wound; respiration short and weak; pulse small and irregular.	Died 3 days after injury.	Three or four pounds of blood effused in pleural cavity from wounded intercostal artery; left ventricle contained three wounds penetrating its cavity; inner openings filled with clot.	M. Dupuytren. Lécons Orales de Clinique Chirurgicale. Paris, 1823.
M. 28 No. 23	Knife-wound to left of sternum, between 5th and 6th ribs.	Fell immediately on being wounded, and lost all power of movement. No other particulars of symptoms given.	Died 5 minutes after receipt of wound.	Pericardium wounded and distended, with coagulated blood; anterior wall of left ventricle perforated near apex of heart.	Wm. Wallace, M. D. The Lancet, (London,) Vol. 2, 1833-4, p. 141.
M. No. 24	Knife-wound to left of sternum, between 6th and 7th ribs.	Profuse hæmorrhage; walked 119 feet, and fell in a state of syncope; pupils insensible; respiration slow; pulse imperceptible.—Very slight re-action.	Died 4 hours after injury.	Pericardium contained twenty-four ounces of fluid blood. Wound through right ventricle six lines in length.	J. Drew, M. B., The Lancet, (London,) Vol. 2, p. 691. 1849.
M. No. 25	Sword-wound to right of sternum, between 5th and 6th ribs.	Walked 60 paces. Syncope; re-action soon followed. Third day, dilated wound and profuse hæmorrhage followed. Imprudent dilatation of wound increased danger.	Died on 10th day after receipt of injury.	Right thorax filled with blood. Right ventricle of heart wounded above tricuspid valve; pericardium distended with blood.	Diemerbroeck. Anatomie of Human Body, trans. by W. Salmon, Lond. 1694.
M. No. 26	Sword-wound.	Syncope; great dyspnœa. Re-action feeble.	Died on 5th day after injury.	Cavity of chest filled with blood. Wound in right ventricle, extending through septum medium into cavity of left ventricle; wounds filled with clot.	M. Paviaul. Nouv. Recueil de Observ. en Chirurg., Paris 1792. Month Journ., 1843, p. 284.
M. No. 27	Knife-wound to left of sternum, between 5th and 6th ribs.	Continued fighting, and after running 150 yards, fell down from exhaustion and expired.	Died ½ hour after receipt of wounds.	Two penetrating wounds of chest: left pleura contained three pints of blood. Knife penetrated pericardium and left ventricle at lower part of middle third. Wound transverse, and half inch in extent.	W. Baird, Esq. London and Edinburgh Monthly Journ. of Med. Sci., Vol. 3. 1843.
M. 34 No. 28	Knife-wound to left of sternum, between 4th and 5th ribs.	Face pale and anxious; pulse weak but regular: respiration regular; re-action came on 24 hours after.	Died on 7th day after injury of cerebral disease.	Cavity of chest contained four ounces of blood from wounded intercostal artery. Wound in middle of left ventricle three and a-half lines, extending into its cavity.	M. Dupuytren. Lécons Orales de Clinique Chirurgicale, Paris 1823.
M. 48 No. 29	Knife-wound from a paper-scraper of ebony, left of sternum, between 4th and 5th ribs.	Patient insane. Syncope, with partial collapse: re-action soon followed. A high degree of thoracic inflammation set in.	Died 4 days after injuries.	Left pleural cavity contained thirty-two ounces of black blood, pericardium a small quantity. Heart, right ventricle, traversed; and still contained "a paper scraper of ebony." Tricuspid valve and auricle also wounded.	Dr. Constantin. Calcutta Quarterly Journal of Med. and Physical Society, No. 5. Lancet, Vol. 2. 1838-9.
M. 34 No. 30	Stylet-wound in left side.	Lunatic. When seen two days after, pulse small and intermittent; breathing laborious; undulating sound heard below wound, compared to blood passing through varicose aneurism.	Died on 20th day after inflicting injury.	Pericardium inflamed, and contained twelve ounces of reddish sanies; stylet found, completely transfixing left ventricle, and extending some lines into cavity of right.	M. Ferus. Medico Chirurg. Rev., Vol. 10, from Rev. Med.
M. 33 No. 31	Bayonet-wound.	Severe pain in præcordia, dyspnœa, intense anxiety, heart irregular, a bruit heard like blood passing from an artery into a vein.	Died 16½ hours after injury.	Pericardium opened three or four lines in extent; a large clot in pericardium; wound two or three lines in extent in right ventricle, at summit of heart; bloody fluid in pleural cavity.	M. Jobert, Arch. Gen. Sept., 1839, p. 209.

M. 23 No. 32	Short-sword - wound to left of sternum.	Four hours after, extreme prostration; respiration short and painful; action of heart tumultuous; blood flowed from wound in respiration; bruit like varicose aneurism. 2d day pleurisy; 3d day pulse irregular.	Died on 4th day after injury.	Much fluid blood in abdominal and pelvic cavities; wound of diaphragm, closed by clot, pericardium filled with scrosity and clots, two wounds, one before and the other behind; heart wounded at apex & enveloped with false membranes, traversing the rt. ventricle & severing the columnæ carnæ.	M. Jobert, Arch. Gen. Sept., 1839, p. 209.
M. 23 No. 33	Short-sword - wound to left of sternum.	Syncope; severe hemorrhage from wound; pulse small and irregular, respiration short and quick, bruit as before; 2d day pulse small, respi. painful & short, signs of pleuritis; 3d day worse; 9th respi. suffocation.	Died 9th day after injury.	Six wounds, penetrating the liver, stomach, &c; left pleural cavity filled with clots and sero-sanguinolent fluid, fibrinous exudation on lung; wound traversing rt. vent.; opening in pericar. closed by a clot which adheres also to wound of heart.	M. Jobert, Arch. Gen. Sept., 1839, p. 209.
M. No. 34	Bayonet-wound.	Frequent fainting—was exposed for five days under an old stair-case. Mortification of lower extremities followed.	Died 14 days after receipt of wound.	Cicatrix of wound observed in lung, pericardium and right ventricle of heart. No effusion in either cavities.	M. Chastenet. Journal de Med. Militaire, Vol. 2.
M. No. 35	Bayonet-wound.	Syncope; pulse scarcely perceptible; re-action came on in a few hours. Expired in the act of defecating.	Died 49 hours after being injured.	Pleura inflamed, and contained coagulable lymph and two quarts of blood. Pericardium nearly filled with blood; wound three-fourths of an inch into left ventricle, and one of the columnæ carnæ of the mitral valves divided.	J. Featherstone, Esq. Medico Chirurg. Trans., Vol. 2, p. 58.
M. No. 36	Penknife - wound to left of sternum, between 7th and 8th ribs.	Syncope instantly followed; pulse feeble but regular; repeated attacks of syncope, in one of which he suddenly expired.	Died 25 days after injury.	Pericardium contained eleven ounces of blood and serum; cicatrix on pericardium; anterior coronary artery divided. Hæmorrhage supposed to have taken place at time of fatal syncope.	Dr. G. W. Richards. Boston Med. and Surg. Journal, Vol. 35, p. 336.
M. No. 37	Bayonet-wound midway between crest of ilium and false ribs.	Withdrew instrument himself, then walked 25 feet and fainted; respiration slow, but by degrees became quick and laborious.	Died 10 hours after receipt of injury.	Bayonet pierced peritoneum, colon, stomach, left lobe of liver, diaphragm, pericardium, right ventricle of heart in two places and lungs. Abdomen and pericardium contained a little bloody serum, left pleura two quarts of blood.	Dr. Babington. Med. Records and Researches. London, 1798.
M. 28 No. 38	Wound from a quadrangular awl to left of sternum, bet. 6th and 7th ribs.	At first felt nothing unusual, walked across street; one hour after partial collapse; pulse frequent and feeble. Suddenly expired.	Died 16 hours after receipt of wound.	Pericardium perforated, and contained more than a pound of dark blood. Wound in left ventricle of heart, near apex.	Dr. Landsberg. Month. Journ. of Med. Sci., Vol. 5. N. S. p. 261, from Schmidt's Jahrbücher, 1851.
M. 21 No. 39	Stab in left mammary region.	On sixth day presented evidences of pleurisy with effusion. Died with cerebral symptoms.	Died on 12th day after injury.	Left pleural cavity and pericardium filled with blood. Pericardium perforated, also right ventricle and septum into cavity of left ventricle.	Dr. Bowen. New York Journ. of Med., N. S., Vol. 3. p. 201.
M. 40 No. 40	Punctured - wounds with a saddler's needle.	Pulse presented no anomalies; a semi-apoplcptic state came on, and he sank with marked cerebral symptoms.	Died 25 days after injuries.	Pleuritic adhesions; six wounds of heart penetrating the right ventricle: one into the interventricular septum. Heart pale, and easily broken up.	M. Dupuytren. Lecons Orales de Clinique Chirurgicale. Paris, 1823.
M. 10 No. 41	Gunshot-wound left side between 3d and 4th ribs.	Walked 40 yards; felt faint several hours after re-action came on. After 14 days had frequent rigors, followed by faintness and quick pulse.	Died 37 days after injury.	Chest healthy; right ventricle contained a round stick, 3 × ⅝ inches; one end resting upon apex, and the other upon auriculo-ventricular valve, which was partially ruptured	T. Davis, Esq. Provincial Med. and Surg. Transactions, Vol. 2, p. 357.
M. No. 42	Gunshot - wound in left side beneath axilla.	Respiratory murmur slight; emphysema; dyspnœa recurring, from time to time, with increasing severity. Action of heart weak. Hectic, followed by rapid emaciation.	Died 10 weeks after receipt of injury.	Left cavity of chest contained a cyst, holding a pint of pus. Musket ball in cavity of left ventricle, firmly impacted beneath cordæ tendineæ and columnæ carneæ.	Indian Annals of Medical Sci., No. 1. 1853.

Portions of Heart most liable to Wounds.—All portions of the heart are not equally liable to wounds. In the forty-two cases here tabulated, the right ventricle was found the seat of the wound in twenty-one cases; the left ventricle in twelve; both ventricles two; right auricle two, and the septum in two. In fifty-four cases examined by M. Ollivier,* the right ventricle was found the seat of the wound in twenty-nine; the left ventricle in twelve; both ventricles in nine; the right auricle in three; and the left auricle in one. From this it will be seen that the right ventricle of the heart is as frequently (if not more so) the subject of wounds as all the other portions of this viscus put together. The anatomical relations of this organ clearly explain this. The anterior surface of the heart is principally formed by the right ventricle, it being situated mostly in front of the left ventricle, and thus is more exposed to wounds.

Comparative Mortality.—Upon this point our table furnishes four cases of positive recovery, in all of which the right ventricle was the part injured. On comparing the parts wounded with each other in the fatal cases, it is found that the average duration of life after fatal wounds is much greater if the left ventricle be the part injured. May the greater thickness of its parieties and the disposition of its fibers contribute to this result?

Duration of Life in Parts Wounded.—The statistics upon this point show the following results: Right ventricle, maximum 29 days, minimum died immediately,—average 9 days; left ventricle, maximum 66 days, minimum 5 minutes, —average 13½ days; right auricle, maximum 7 days, minimum 2½ days,—average 4¾ days. In 2 cases in which both ventricles were wounded, maximum 6 days, minimum 4 days, —average 5 days.

Conclusions.—The following conclusions may be deduced from the facts observed in the cases of wounds of the heart here collated:

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* *Dictionnaire de Medècine,* tome viii. Paris, 1834.

That wounds of the heart are not in general immediately fatal.

That recovery, after severe gun-shot, incised and punctured wounds of the heart is possible, and that, too, amounting almost to a probability, provided a careful and judicious treatment is faithfully carried out.

That the presence of a leaden ball imbedded in the walls of a ventricle of the heart does not preclude the possibility of recovery, and is not incompatible with the continuance of life for a number of years.

That it is possible for an incised wound of the heart to heal by first intention, and the patient afterward be able to continue a laborious occupation for years after with no severe manifestations of heart disease.

That the presence of a foreign body, other than a leaden ball, of considerable size in the walls or cavities of the heart, does not necessarily preclude the possibility of a continuance of life for a number of days.

That the *prognosis* of all wounds of the heart is unfavorable, but that in some cases hopes of recovery may be entertained, provided the patient's constitution be good, and efficient treatment be early resorted to.

That the proper treatment of wounds of the heart is that which is adapted to like wounds of the chest in general; and that the inflammatory complications must be met with the same remedies as are adapted to the management of the disease when arising from idiopathic causes.

That all parts of the heart are not equally liable to wounds, the right ventricle being the one most frequently injured.

That the comparative mortality of heart wounds shows that the average duration of life is greater if the left ventricle be the seat of injury. This proposition is opposed to the received opinion of almost all writers on this subject.

That the medico-legal relations of wounds of the heart are important, and should command the surgeon's careful attention, in order that he may not jeopard the life of his patient by timidity on the one hand or temerity on the

other; and thereby subject himself to the inconvenience of the raising of a false issue on the management of the case before a legal tribunal. This issue was actually set up in the case reported by Dr. Neurohr, which has previously been cited by us.

Literature of Wounds of the Heart.—Aside from the reports of numerous isolated cases which are scattered through the periodical literature of medicine, and many treatises on surgery and medical jurisprudence; the following are among the principal contributions which have been put forth for the elucidation of this interesting if not important species of wounds.

Some Observations on Wounds of the Heart. By JOHN REDMAN COX, M. D. *American Journal of the Medical Sciences.* Vol. iv., p. 307. Philadelphia, 1829.

An Essay on Wounds of the Heart. By CATHCART LEES, A. B. *Dublin Journal of Medical Science.* Vol. xi., p. 169. Dublin, 1837.

Clinical Lecture on Wounds of the Heart. Delivered at the Jervis Street Hospital, Dublin. By WILLIAM WALLACE, M. D. *The Lancet* (London) for 1833–4. Vol. ii., p. 140.

The Commentaries upon the Aphorisms of Boerhaave. By VAN SWIETEN. 18 vols, 8vo., London, 1759. Vol. ii., p. 77.

Upon Heart Wounds and Extravasation of Blood into the Cavity of the Chest. By DR. STEIFANSAND. *Casper's Wochenschrift,* No. 15. 1838.

Leçons Orales de Clinique Chirurgicale, etc. By M. DUPUYTREN. 4 tomes, 8vo. Paris, 1832–4. *Lecture on Wounds of the Heart,* translated in *The Lancet,* (London,) 1834–5. Vol. i., p. 767.

Wounds of the Heart. By M. OLLIVIER. *Dictionnaire de Medécine.* 30 tomes, 8vo. 1832 to 1846.

Reflections on Penetrating Wounds of the Heart. By J. A. JOBERT (de Lamballe) *Archives Géneral de Medécine* for Sept. 1839.

Upon Wounds of the Heart, especially in their Forensic Relation. Medical Times, (London). Vols. vi. and vii., 1842–3, from *Medicinische Zeitung.*

Case of Wound of the Left Ventricle of the Heart, with General Remarks on Wounds of that Organ. By WILLIAM BAIRD, Esq. *The London and Edinburgh Monthly Journal of Medical Science.* Vol. iii., p. 275. 1843.

On Wounds and Injuries of the Chest. By G. J. GUTHRIE, F. R. S. London, royal 8vo. 1848.

Elements of Medical Jurisprudence. By T. R. BECK, M. D., and J. B. BECK, M. D. 2 vols., 8vo. Albany, 1851. Vol. ii., p. 329. Article *Wounds.*

ART. VIII.—*Protracted Valvular Disease of the Heart.** By JOHN W. CORSON, M. D., Physician to the N. Y. Dispensary; late Physician to Brooklyn City Hospital.

WE cling strangely to threatened life. The wounded man crawling from slaughtered heaps on a battle-field, blesses the surgeon who first tells him he will live. So, too, the sufferer with a crazed faltering heart,—with disease which he knows to kill so many,—must brighten at the professional announcement that he may live quietly for long years. Skill in prognosis then is to be highly prized, and faithfully sought. Not one of us who has ever met the gaze of a sunken eye, reading our inmost soul; or with a whisper started tears of agony or joy from a trembling group around;—or felt the affairs of two worlds interested in our verdict, can ever undervalue this gift of medical prophecy. Nor can we forget the sting of mistaken promise. It is no light thing, to be able to tell a human being whether he will live or die. Yet in all this, there is nothing supernatural. We reason from observing a multitude of cases, and from rules thus formed, some of them as old as the Aphorisms of Hippocrates. Cardiac disease, in its fullness, is so recent a discovery, and we have had so much to learn in its symptoms and pathology, that we have done little in its prognosis. We are naturally apprehensive. We know that sometimes a patient will groan with rheumatism awhile, and then, all but the palpitating heart will be well for a year or two, when it stops like a broken clock, and he faints and falls stone dead; or it struggles wearily for life for months, and then chokes him some day with pulmonary effusion; or it deluges his brain with apoplexy; or makes him hobble more slowly to the grave with palsy; or he grows sallow with the prefix or addition of Bright's kidney, or a swollen liver, and bloats and dies by inches with dropsy; or, strangely enough, with a heart puffing and thumping like a small engine, he keeps his rosy cheeks and lives on tranquilly for many years, to the disappointment of desponding physicians, and expectant heirs, who fancy a man with disease of the heart ought to die soon. Why are these differences? Which valves or chambers can best be spoiled? Do age, sex, labor, causes or complications, influence duration? How long can crippled hearts last? To increase the chances for life, when must we paralyze an active patient, and rob him perhaps of the calling or profession of his enthusiastic choice and sole dependence? If lesions of one valve or cavity differ from others in danger, what are their exact signs? Granting that remedies shorten or lengthen the disease, which are best? After the only sure way—the exact numerical system of that great medical reformer, Louis, we propose in this paper, so far as we are able, to investigate these questions by the relation or tabular analysis of original and selected cases of valvular disease of the heart of at least three years' duration. We have included, without exception, all of this class definitively recorded, which were accessible to us either in text-books or journals for the last twenty years. In the illustration of prognosis we suffered the

* Read before the Society of Statistical Medicine.

disadvantage of not meeting a single previous table. That indefatigable numerical observer, Valleix, himself confesses a blank here. Though protracted cases are constantly occurring in private practice, the records of them are scarce. They are met principally among quiet comfortable citizens, or as one of the infirmities of tranquil old age, often under the care of those who publish little, and not in the more carefully recorded experience of the exposed and overwrought poor of hospitals and dispensaries. They must also be watched for several years. Besides, the precise character of several symptoms of heart disease necessary to be noted in a full, accurate description, is comparatively a recent discovery. The prognosis of heart affections, as we may infer from the above questions, practically involves also the consideration of diagnosis, complications and treatment. With this frank confession of difficulties we shall make a beginning.

CASE I..—*Aortic Valvular Obstruction and Regurgitation, with great Hypertrophy, from Rheumatism;—for Thirteen Years.—Gentle Exertion.—Improvement.*

A weaver, aged 32, stout, muscular, having been pronounced to have had organic heart disease by several physicians, after severe rheumatism two years previous in Philadelphia, consulted me in 1844 for palpitation, asthmatic breathing, and muscular pains which incapacitated him from labor, but did not prevent him from quiet and even lengthened walking.

Condition.—Expression anxious; face rather pale; lips scarlet; *eyes bright and protuberant;* gait cautious; respiration sometimes twenty-four; asthmatic; pulse eighty, full, slightly jerking; chest on baring, *bulged* considerably by the immense heart; impulse strong, heaving; apex reaching five inches from sternal center and one inch left of the nipple; precordial dullness 4 inches; a loud sawing murmur with both sounds of the heart and masking them, heard mainly at the right edge of the sternum above, along the aorta, and also in the carotids; no dropsical effusion; liver natural; digestion moderate and fickle.

For the occasional turns of asthmatic breathing and severe palpitation he was ordered to take an aqueous mixture of the iodide of potassium, tincture of hyoscyamus and digitalis, and to use mild counter-irritation with croton oil; to avoid excess, excitement or great exertion; and only to take medicine, when urgently required. Strange to say, though obliged to consult me occasionally for more than ten years past, while the heart-symptoms have remained unchanged, his general health has slowly but decidedly improved. He has entirely escaped either hemorrhage or dropsy. Only a few weeks since he was seen by one of my pupils in the most approved style promenading Broadway.

We find in this case, an example of the wonderful power of adaptation, which the human frame possesses. Just as when a lung is collapsed and spoiled by chronic pleurisy, the opposite one enlarges and compensates the loss; so in this instance the immense heart crowding the lung, partly made room for itself by bulging the walls outward.

Circulation and respiration gradually accommodated themselves to the new state of things, and in the course of a few years the health of the patient greatly improved. The peculiar bulging and fiery expression of the eye noticed in this, and some other cases, will be made the subject of comment under the head of "symptoms." He had been frequently warned by his physicians of his liability to early and sudden death, and this, or something else, made him look older than he was, so that

"His hair was gray, but not with years."

Latterly he grew more cheerful, probably from proving them as yet false prophets.

Case II.—*Aortic Valvular Obstruction and Hypertrophy from Rheumatism;—for fifteen Years.—Sudden Death.*

A clergyman, aged sixty-eight, slender, slightly florid in complexion, distinguished as a fervid and eloquent preacher, having suffered acute rheumatism followed by palpitation and uneasiness, thirteen years previous, and having been pronounced to have "disease of the heart" by an eminent Philadelphia physician, consulted me in 1847 for dyspepsy and extreme "nervousness." For the earlier half of the above period he had labored faithfully as a city pastor; but he had latterly retired to the country, and preached only occasionally. For some time his heart had been forgotten in attention to his stomach and nervous system. He had never had hemorrhage or dropsy.

Condition.—Expression anxious; complexion and lips clear, fresh; pulse full moderate; respiration natural; no precordial bulging; apex pointing to four and one half inches left from sternal center; precordial dullness three inches; *impulse but slightly strengthened;* a harsh, rasping, right sternal, aortic murmur with the first sound; tongue clean; appetite fickle.

His family were duly warned, but on account of his extreme sensitiveness and fits of dejection, it was decided not to alarm him about his heart. He was simply ordered vegetable bitters and preparations of iron for a time, with digestible nourishing food; to avoid undue excitement or exertion; with permission, till it might prove injurious, to exercise carefully in the pulpit.

Two years after, he was noticed to preach one Sabbath morning with unusual pathos and earnestness, so as deeply to move his audience. It was his last effort,—the song of the dying swan. A few mornings after, I was called to prescribe a soothing diaphoretic for a little nervousness and febrile excitement, but left him walking about his room. In the afternoon he lay down to rest, and when the servant brought him his usual meal, she found him as in a slumber, lying on the bed quite dead. Permission could be obtained to examine the heart only. It was found with the left ventricle dilated and hypertrophied, but the muscular substance firm and free from fatty degeneration. The aortic valves only were diseased, being thickened with scales of calcareous deposit. Patches of atheromatous matter were scattered over the inner surface of the aorta. A portion of the right subclavian was so ossified and brittle, as to break and come away with the fingers. The heart weighed seventeen ounces.

In this case the enlargement happened so exactly to compensate for the aortic obstruction, that the heart attracted but little attention and was for a long time forgotten. The impulse and pulse were nearly natural. Nature, in repairing the injury, had fortunately just hit the mark. The amount of exertion borne by the patient for years, was really surprising.

CASE III.—*Aortic Obstruction and Regurgitation with Hypertrophy from Rheumatism;—for eleven Years.—Fair Exertion.—Health rather Failing.*

A waiter at the Astor House, aged forty-five, stout, bilious-looking, was admitted under my care at the New York Dispensary, March 29th, 1854, complaining of troublesome cough and palpitation. Eleven years previous, after four months' confinement with rheumatism, his heart-symptoms had commenced; and these were aggravated afterward by repeated attacks of intermittent and congestive fever, while residing in Georgetown, Delaware, requiring the free use of mercury and quinine. He had suffered no dropsy or hemorrhage, and though delicate, had generally been able to be active, till recently.

Condition.—Face sallow; pulse sixty-four, natural; dyspnœa; respiration twenty-two; impulse of the heart, strong heaving; apex four and one half inches left from sternal center, and half an inch beyond the nipple; precordial dullness four inches; a rough, rasping murmur with both sounds of the heart, heard mainly at the right sternal edge above the origin of the aorta; the second sound of the heart accented; liver about normal in size; spleen enlarged; digestion feeble; tongue tolerably clean; no edema; mucous rales indicating slight bronchitis. He was ordered a mixture of the iodide of potassium with the tincture of digitalis, hyoscyamus and cinchona in water, with frictions of croton oil and belladona over the heart. After slight improvement, he soon after discontinued attendance.

The accenting, of the second sound, probably depended on the pulmonary congestion connected with chronic bronchitis.

CASE IV.—*Aortic Obstruction and Regurgitation with great Hypertrophy and Dilatation, from Rheumatism;—for eight Years.—Moderate Exertion.—Living.*

A shoemaker, aged twenty-nine, stout, muscular, and fresh-looking, was admitted to the New York Dispensary, March 20th, 1854, with an affection succeeding an attack of acute rheumatism while exposed on police duty in Ireland eight years since,—for which he was treated in Stevens' Hospital, and which was pronounced by Sir Henry Marsh to be "organic disease of the heart." He had been able to work moderately since, at his business, but on any unusual exertion he suffered from dyspnœa and palpitation. He had never had dropsy, but during the whole period since his first illness he had been subject to attacks of hæmoptysis with the discharge of bright arteral blood at intervals, which seemed to relieve cardiac oppression, and, to use his own expression, made him "feel lighter." For two years he had suffered considerable deafness, which he supposed to have been caused by a cold.

Condition.—Face and lips florid, fresh; expression anxious; *eyes*

protuberant, bright, staring; gait cautious; some dyspnœa; respiration twenty-four; pulse eighty-six, slightly thrilling, sometimes intermittent; precordial region slightly bulging; dullness of three and a half by five inches; impulse strong, "heaving;" apex pointing by careful measurement *six inches to the left of sternal center*, reaching below sixth rib, and one inch beyond the nipple; a loud rasping murmur heard with both sounds of the heart, mainly along the right side of the sternum opposite the junction of the second rib; much wax in the ear; tympani seen through the speculum, and both perfect; appetite variable.

He remained under treatment for nearly a month. Syringing the wax from the ears did not benefit the hearing. Asthmatic breathing was relieved partly by an aqueous mixture of the iodide of potassium with the tincture of hyoscyamus, and the attacks of pulmonary hemorrhage were moderated by the acetate of lead and opium. At last a very severe attack of bleeding weakened him so much, that at his request he was sent to Bellevue Hospital.

In this instance the deafness and hæmoptysis doubtless depended on congestion arising from the extra propelling force of an overgrown and powerful heart. As a substitute for leeching or cupping, Nature herself relieved local plethora by turns of hemorrhage like the periodical eruption of a volcano. From the extreme elongation of the heart to the left, as manifested by the oval shape of the dull precordial region, it was evident that the hypertrophy was of the left ventricle.

CASE V.—*Aortic Regurgitation with Hypertrophy for six Years, probably from Rheumatism—slightly Aggravated.—Free Exertion.*

A cabin-boy, aged seventeen, tall, ruddy, strumous, in passing through New York to his home in the country, consulted me in September last for alleged "disease of the heart." In very early childhood he had been very ill, but he could not then say what had been the disease. Six years since, or at the age of eleven, he was also ill all winter, and kept in doors by some severe sickness, the nature of which he does not remember, in his native city of Rochester, under the care of a Homeopathic physician. He recovered "after all the doctors" had left him,—with unusual palpitation on walking or running fast, and also, to use his expression, with "swelling of the heart." Two years after, he had severe rheumatism all winter, without medical treatment. Three years later, he was confined to his room for two months, under the care of a regular physician, which, with pleurisy of his left side, left the heart stationary. After this he went to New Orleans for his health, and served as cabin-boy on board several steamers with tolerable comfort until, three months since, the palpitation and heart-symptoms increased so much that he left his employment, and entered the Charity Hospital at New Orleans for a fortnight, and was treated for "disease of the heart," with some relief. Shortly after, he left New Orleans and came in the steamer to New York on his way home.

Condition.—Face very florid; *eyes bright and protuberant;* scrofulous enlargement of the glands on the right side of the neck; jar and unusual motion of the heart detected at a little distance through

the clothing; pulse eighty-four, rather firm; decided precordial bulging; impulse strong, undulating; dullness three and a half inches; apex one inch to the left of the nipple, reaching below the sixth rib; a loud, rasping, aortic murmur with the second sound heard at the right of the sternum along the arch of the aorta; left ribs retracted slightly; some dullness from former pleurisy; complains of sciatica of the right hip.

It is strongly probable that the two attacks in early childhood, the nature of which he could not remember, were rheumatism. New Orleans, though the dampest place in the world, has yet a warm climate; and hence it exempted him from rheumatism. We believe that the curative influence of a warm climate in rheumatism is not generally appreciated. A friend of ours, a perfect martyr to the disease when a young man, while residing north, procured entire exemption, for years, while in active practice as a physician at Metamoras, in Mexico; and great subsequent mitigation afterward, in a residence in the vicinity of New York.

CASE VI.—*Aortic Obstruction with Hypertrophy, from Rheumatism; for three Years.—Free Exertion.—Improving.*

A lad, aged ten years, slight in figure, but active, able to play freely with little inconvenience, having had severe acute rheumatism three years previous in Connecticut, and suffering, in the opinion of his physician, with "disease of the heart" immediately afterward, without subsequent dropsy or hemorrhage,—consulted me in autumn last.

Condition.—Complexion naturally brunette, inclined to sallow, but clear, and with no lividity; lips, fresh looking; pulse, eighty-five, rather firm; no precordial bulging; impulse slightly strengthened; dullness a trifle enlarged; apex points even with the left nipple; a *very harsh loud rasping murmur with the first sound*, most distinct over the origin of the aorta, at the right edge of the sternum; breathing slightly asthmatic; occasional turns of palpitation. Latterly, there has been a decided improvement. The hypertrophy here was moderate, and the derangement to health very slight, and yet the murmur was extremely loud, so as to be heard several inches from the chest. A vigorous young heart was playing upon aortic valves, probably merely well roughened, so as to be loudly musical without leaking or regurgitation—proving that the mere quantity of sound is no index of the severity of the disease.

The following example selected from Dr. Blakiston, reckoning to the time of the publication of his work in 1848, is the most protracted of any we have met on record. It is given also as the type of many latent unsuspected cases among quiet aged people, generally from slight aortic roughening from calcareous deposit; and, as in Case II., often causing little or no inconvenience in their daily duties.

CASE VII.—*Aortic Obstruction, from Accident; for twenty-four Years.—Fair Exertion.—"Well," latterly.*

"A lady, aged sixty-five, was thrown from a carriage and struck the ground with her shoulder, in the year 1824. Considerable inflammation ensued. She was attended by Sir P. Crampton and recovered;

but, from that time, she was subject to violent fits of palpitation, which lasted generally twenty-four hours, in one of which I saw her, nine years after the accident. The pulse was intermittent, and there was a lengthened rasp sound running up the aorta. The diastolic sound was strong but muffled. On the fit of palpitation subsiding, the intensity of the sound decreased, but its quality remained the same. I saw her again in 1837, when the fits of palpitation were less frequent and less severe, and the pulse less intermittent.

"In 1846 I again attended her at Torquay, in consultation with Dr. Battersby and Dr. Toogood. The palpitations had entirely ceased for five years. She was then in her eighty-fifth year. The sound was the same as on the two former occasions. She still lives (1848), and is well, having no palpitations, dyspnœa, or edema of the feet."

From this description of Dr. Blakiston we have inferred that she was able to use a *fair* amount of exertion from the expression "is well," and from the fact that no mention is made of her being incapacitated for moderate exercise. She had neither dyspnœa, dropsy, nor hemorrhage. A very curious point in this case, was the gradual *improvement* similar to that mentioned in Case I.; and particularly the cessation of the palpitations for the last five years. In the table of cases, we have included an example recorded by Dr. Semple in the *London Journal*, of a thin old lady, in a charitable institution, at the advanced age of eighty-three years, who, from previous rheumatism, had suffered from valvular disease at least eight years. The pulse was eighty, and feeble; the impulse and dullness were nearly natural, showing little hypertrophy; double sawing murmur was heard over the origin of the aorta. There were also dyspnœa; cough; and some senile bronchitis. She sank gradually with aggravated pulmonary symptoms. On examination after death, the aortic valves were found ossified and narrowed to a mere chink, and the mitral slightly thickened and ossified. We believe that a pretty large per centage of such musical hearts from the ossified deposits, so common at that period, will be found among very aged persons.

M. Neucourt, in some researches on the condition of the heart among the inmates of the extensive asylum for the aged at Salpatriere, published in the *Archives Generales*, states, as one of his conclusions, "that, with them, disease of the heart with very serious impairment of its functions may exist for a great number of years without causing death."

Case VIII.—*Mitral Regurgitation with Hypertrophy, from Rheumatism;—for eight Years.—Only gentle Exertion.—Stationary.*

A lady teacher, aged thirty, slender, consulted me in October last for "disease of the heart." At the age of fourteen, or sixteen years ago, she suffered from rheumatism for eleven weeks; and subsequently she has been a martyr to the disease nearly every year since. She did not notice any unusual sensations about her heart, until after an uncommonly severe attack, for which she remembers she was profusely salivated eight years since. From this time she was subject to severe

palpitation and difficulty of breathing on slight exertion, and shortly after she was informed by her physician she had "disease of the heart." It had left her in a very nervous debilitated condition, so that she was unable to walk, even quietly, for years, for any considerable distance, without much exhaustion. She had never had dropsy. Five years since she once lost half a tea cup of blood by hæmoptysis. In May last she suffered a severe inflammatory affection of the lungs, from the prostration of which she is but just recovering; and since which the menstrual discharge has not returned.

Condition.—Face puffy, cheeks suffused, and of a slightly livid claret hue; pulse aggravated by nervous excitement, remaining at 116; impulse forcible, dullness extensive; apex points five inches to the left of the sternal center; with a *churning* harsh murmur heard with the first sound, and most distinctly at the apex of the heart, and below the sixth rib; palpitation on exertion; appetite improving.

In this case the patient had a careworn look, as in Case I.; her hair was becoming quite gray, so that she appeared ten years older than she really was.

CASE IX.—*Mitral Regurgitation with very slight Hypertrophy, from Rheumatism;—for thirteen Years.—Moderate Exertion.—Stationary.*

A young friend, a clergyman, aged twenty-six, slender, but florid, consulted me a few weeks since for cardiac disease of long standing. At the age of eleven years he had suffered for three months with acute rheumatism, which left him without any palpitation or other cardiac symptoms. Subsequently with his father's family, he had passed several years in Europe. Two years after, or at the age of thirteen, while spending the winter in Paris, he had a very severe attack of rheumatism, lasting for six weeks, and accompanied by swelling of the joints, which finally left him with palpitation and other symptoms of disease of the heart, for which he consulted Sir. R. Chermside, M. Monod, M. Bouillaud, and Baron Louis. M. Bouillaud pronounced it a very "grave case." He remembers he was cupped over the heart and took ether and iron. He left Paris for Geneva the following summer in a very weak state, still suffering from heart-symptoms. While in Geneva he was induced to try Homeopathic treatment. During the ensuing year and a half, he began gradually to get taller, and, so to speak, to outgrow his disease. After his return to New York, in 1843, he was under the judicious care of the late Dr. Washington. Entering the ministry he was sent abroad again, and officiated regularly, for a year or more, as a missionary chaplain, at an important post in one of the European cities. Occasionally he has suffered considerable inconvenience for weeks or months from his heart-symptoms, but at no time has he been obliged to suspend his labors for any lengthened period. At present he is able to preach in our city churches.

Condition.—Face delicately florid; pulse natural; no precordial bulging, and little, if any, increase in the area of dullness, or the impulse, or change in the position of the apex. Just over the apex with

the first sound of the heart, was a distinct muffled syringe murmur of mitral regurgitation. The appetite and other symptoms were natural.

The comparatively little inconvenience caused in this instance by the disease, doubtless depended entirely on the small quantity of blood escaping and the integrity of the muscular substance of the heart; or, in other words, the absence of material hypertrophy or dilatation. Very *extensive* mitral regurgitation, we believe, from observations not embodied here, to be one of the graver and more dangerous forms of chronic heart disease; and yet the above and the following case from Dr. Stokes, show that a *slight mitral leakage*, when stationary, with little or no enlargement, is not sufficient to produce pulmonary congestion, and may exist with little disturbance, for a great many years. Such encouraging exceptions to unfavorable general rules, when once definitely established, are of great practical value.

Case X.—*Mitral Regurgitation from Rheumatic Gout;—for twelve Years.—Violent Exertion.—Excellent Health.*

A sanguine, active young man, living luxuriously, and just previously in excellent health, on consulting a physician for an attack of epidemic influenza, was surprised with the announcement of disease of the heart, indicated by the bellows murmur of mitral regurgitation, and suddenly ordered to change from good dinners, generous wines, and free horse-back exercise, to low diet, total abstinence, timid walking. These with unnecessary medical treatment soon produced constant fear of sudden death, and depression of mind and body. "It was under these circumstances," says Dr. Stokes, "that I first saw him." The pulse was full and fair, the lungs were healthy, the heart was tranquil and normal in its signs, with the exception of a "distinct" murmur confined to the region of the mitral valve. Depressing treatment alone seemed to have brought on palpitation and aggravated all his symptoms, and there had been no marked cardiac or pulmonary inflammation otherwise to account for the disease. Dr. Stokes attributed the murmur to a slight mitral roughening or "cicatrix" from acute rheumatic gout seven or eight years previous, just sufficient to produce the murmur without interfering materially with the functions of the valve. He advised an entire change of treatment, allowed the moderate use of stimulants, and a return to active business habits. The mitral murmur continued unchanged, and without injury, till the patient was last seen, and during a period of twelve years. He obeyed the request of Dr. Stokes to be examined once a year, continued in excellent health, and at one of the last visits, he had just returned in high spirits from carrying pouch and gun on a hunting excursion among the mountains of Scotland, without the least inconvenience.

Case XI.—*Aortic and slight Mitral Disease.—Great Hypertrophy, from Rheumatism;—for twenty-two Years.—"Half" Labor.—Brief severe Illness.—Death.*

In the report of the New York Pathological Society published in the New York Journal of Medicine for September, 1850, there is a remarkably interesting case with a specimen presented by Dr. Smith

of Randolph, Vermont, through Professor Clark, of this city, from which we condense the following abstract.

The patient, a young man of twenty-eight years, had been under the care of Dr. Smith for rheumatism and organic disease of the heart, at times, for twenty-two years previous to his last illness. Both his mother and grandmother had been subject to rheumatism. "Organic disease of the heart" had been detected by Dr. Smith after a severe rheumatic attack when the patient was a lad of six years. He grew up in delicate health and suffered no less than four subsequent attacks of severe rheumatism, respectively at the ages of eight, twelve, sixteen, and eighteen years, besides being incapacitated a few weeks from over exertion at twenty-five. For many years before his death he could perform at intervals of considerable length about half the agricultural labor of other young men. But, as Dr. Smith observes, "At no time could a stranger apply his ear to the chest without astonishment that he could do any kind of work, or without fear that the walls of the heart were about to give way and cover the listener with blood."

No further exact description is given of valvular murmurs or any other physical signs of special complications. After unusual exertion and sleeping in a crowded, ill-ventilated apartment, early in May, 1848, he was seized with a sense of exhaustion, faintness, thirst, restlessness, loss of appetite, succeeded by edema of the feet, cold clammy sweat, feeble and at length almost imperceptible pulse. After suffering a week in this condition, while attempting to rise and walk one day, he fell into the nurse's arms and expired.

On post-mortem the heart was found hypertrophied so as to weigh fifty-eight and a half ounces (or three and a half lbs. averdupois); the left ventricle was an inch thick with a cavity holding eight or ten ounces; the right ventricle was less changed, and the pericardium was every where adherent except some slightly loosened interspaces. Professor Clark stated that on minute examination the mitral valve was "thick and leathery," and the margins of the aortic valves were covered with "adventitious deposit."

In most of the examples of aortic and mitral lesions combined, the disease greatly predominated in one, while the other was but slightly involved. In the following case from M. Forget the disease equally affected both, while the free mitral regurgitation seemed a vent to prevent hypertrophy of the left ventricle.

CASE XII.—*Simultaneous Lesion of the Aortic and Mitral Orifices, without Hypertrophy; from Rheumatism;—for three years.—Gradual sinking.—Death.*

A girl aged 26 years, of good constitution, had been attacked three years previous with acute articular rheumatism of long duration, during the course of which she had had palpitations, dyspnœa, and infiltration of the legs, which disappeared. Six months since, the difficult breathing and edema returned. We noted:—face puffy, slightly cyanotic; eyes injected; no bulging; extended dullness of the precordial region; purring tremor; harsh systolic bellows murmur; jugulars pulsating and varicose; pulse small, frequent, at times irregular; dyspnœa extreme; slight subcrepitant rales; considerable anasarca;

enormous ascites; urine reddish. She was ordered diuretics, mainly of digitalis and squills, with fomentations. A few days after, she improved slightly, so as to bear bleeding and the continuation of the diuretics.

The fomentations produced erysipelas of the abdomen, followed by perspirations and more abundant urine.

At the end of a month the infiltration was much diminished; but the dyspnœa and rasping systolic murmur continued. She was ordered diuretics and laxatives.

The patient lingered thus for a long time, when at length the feebleness and edema reappeared, with a bellows murmur, with the second sound distinguished with difficulty in the tumult of the heart; also suffocations, cyanotic appearance, and thread-like pulse.

She was treated with stimulants and revulsives. She died tranquilly four and a half months after her entrance.

Autopsy:—serious effusion in the cavities of the pleura, the peritoneum and the arachroid; serosity in the pericardum; no hypertrophy or dilatation of the left ventricle; auricles gorged with blood; the mitral and aortic orifices equally ossified, deformed, contracted, and insufficient.

Our limits oblige us to close these more full details. To present the largest number of illustrations in the least possible space, we have gathered all the legitimate, well-described examples of valvular disease we could find lasting three years or more, in the following table, as a kind of chart of the whole subject. Further protracted examples of aortic and mitral disease alone, and in every possible combination, and the very rare forms of tricuspid and pulmonic valvular lesions, are gathered from the works of Bouillaud, Bertin, Forget and others, which we trust will repay careful study. We have sought simply and honestly to arrive at truth, and have included every fairly illustrative case accessible to us in the records of the last twenty years, without favoring any theory, and without rejecting any of three years' duration, except they were too vague or imperfect. If some examples defective in minor points have been retained, it has been because they have been definite and instructive in other features, and because our materials have been too scanty to spare them. On the important point most difficult to settle—the precise *duration*—most of the rejections have occurred. All those instances recorded by Andral and others, in which indefinite phrases, such as "many years," "a very long time," and the like are used, have been excluded. In the few less perfect cases retained, the evidence is so strongly presumptive that the chances for error are perhaps not more than one in ten. It is well known that both within and without the profession a vague apprehension prevails that valvular disease of the heart is necessarily and *speedily* fatal. While we desire from an array of facts, to modify and restrain this fear within just limits, we have no desire to lull into false security, those interested in this terrible malady. Frankly, then, we conclude this explanation by reiterating that the following table, as its heading implies, does not present the *medium average*, but the most *favorable extreme*, and that, while its results have delighted and surprised us, we have no wish to throw any off their guard.

A Table of Forty-one Cases of Protracted Valvular Disease of the Heart—for Three Years or more.

ABBREVIATIONS:—p. pulse; pal. palpitation; dysp. dyspnœa; imp. impulse; murm. murmur; dull. dullness; r. right; l. left: st. sternal; ap. apexial; sys. systolic (1st sound); diast. diastolic (2nd sound); w. with; wt. weight; ld. loud; str. strong; * autopsy.

NO.	SEX.	AGE.	CONDITION. EXERTION.	CAUSE.—YEARS DURATION.	SOME SYMPTOMS.	VALVES AFFECTED.	HYPERTROPHY, DILATATION & PERICARD. AD.	COMPLICATIONS.	RESULT.	AUTHORITY.
1	M.	68	Clergyman. Act. or seden.	Rheumatism. 15	Face anx. fresh.; p. nat.; pal.; dull. 3in; imp. mod.; murm. sys. r. st. rasp.	Aort. obstr. fr. ossific. dep.	l. hypert. dil. wt. 17oz.	Dyspepsia. "nervousness."	Sud. death.*	J. W. C., *N. Y. Jour. Med.*
2	M.	10	School-boy. Active.	Rheumatism. 3	Face nat.; sallow; p. 85 firm pal.; imp. mod.; dull. sl. inc.; murm. sys. r. st. ld. rasp.	Aort. obstruct.	Slight hypert. with dilatation.	----------	Improving.	J. W. C. *N. Y. Jour. Med.*
3	F.	32	Married.	14	p. feeble; prec. pain; dysp.; cough; imp. br. str.; dull ext.; interm.; mur. sys. bel. *l. ster.*	Aort. obstruct. thick contracted.	Great hypert. w. dilatation.	Hæmoptysis.	Sank grad.*	Dr. Haycraft, *Lond. Med. Gaz.*
4	M.	33	----------	Rheumatism. 10	p. full intermitt.; pal.; dysp.; dullness to r.; murm. doub. sawing.	Aort. obstruct. shrivelled indur.	Some hyper. great dil. per. ad.	----------	Died.*	Mr. Tripe, *Lond. Lancet.*
5	M.	59	"Gentleman."	4	p. full; pal.; pain; dysp.; cough; bulg.; imp. str.; dull. extend.; murm. r. st. grat'g carot.	Aortic obstruction. thickened.	Great hyper. dila. ad. per. wt. 28oz.	Sl. aneurism. album 6mo.	Sank grad.*	Dr. Williams, *Lond. Lancet.*
6	F.	young.	"Lady." Usual amuse.	6	p. shrill; pal.; pain; dysp.; cough; "purring;" imp. str.; murm. sys. grating.	Aort. obstruct.	----------	----------	Continued well.	Dr. Williams, *Lond. Med. Journ.*
7	M.	52	Cook. Moderate.	10	Face paralysed, distorted; p. 96 full; dysp.; cough; pal.; murm. loud rasp.	Aortic obstruction. calc. concretion.	Great hyper. w. dila.	Palsy apop. dropsy.	Died sudd. apop.*	Dr. Hope, *Dis. of Heart.*
8	M.	24	Gardener.	Rheumatism. 8	Face puffy; restless; p. 120 full jerking; pal.; imp. ext.	Aortic obstruction. cartilag.	Great hyper. w. dila. per. ad.	Hæmoptysis.	Sank grad.*	Dr. Hope, *Dis. of Heart.*
9	F.	87	"Lady." "Well."	Fall. 24	p. intermitt.; pal. 19 years; murm. sys. r. st. ld. rash; 2d sound accented.	Aortic obstruction.	None mentioned.	Probably pleurisy.	Living. "well."	Dr. Blakiston, *Dis. of Chest.*
10	M.	17	Cabin-boy. Active.	Rheumatism. 6	Florid; eye protub.; p. 84; pal.; bulg. imp str. heaving; dull. 3½; mur. diast. r. st. rasp.	Aort. regurg.	Med. hyper. w. dilat.	Pleurisy scrof. scia.	Latterly failing.	J. W. C., *N. Y. Jour. Med.*
11	M.	32	Weaver. Quiet walk.	Rheumatism. 13	Pale; eye prot.; p. 80 jerk.; pal.; dysp.; bulg.; imp. st.; dull 4in; murm. r. str. sawing doub.	Aortic obstruction and regurgitation.	Large hyper. dila.	Asthmat. occasl. bronchit.	Good. improving.	J. W. C., *N. Y. Jour. Med.*
12	M.	29	Shoemaker. Moder'ly act.	Rheumatism. 8	Florid; eye protub.; p. 86 int. shrill; resp. 24; dysp.; pal.; im. heav.; dull 4; murm. r. st. saw.	Aortic obstruction and regurgitation.	Large l. hyper. with dilat.	Hæmoptysis. deafness.	Latterly failing.	J. W. C., *N. Y. Jour. Med.*
13	M.	45	Waiter. Active.	Rheumatism. 11	Sallow; p. 64 nat.; dysp.; pal.; imp. s. heav.; dull. 4; mur. sys. r. st. saw.; 2 sd. acc.	Aortic obstruct. and regurg.	Large l. hyper. with dilat.	Bronchitis. enlar. spleen.	Latterly failing.	J. W. C., *N. Y. Jour. Med.*
14	F.		----------	Pulm. inflam. 8	p. small; cough; imp. heaving; murm. doub. saw. r. ster.	Aortic obstruct. and regurg. cart.	Great hyper. w. dilat.	----------	Died sudd.*	Dr. Blakiston, *Dis. of Chest.*
15	M.	20	Green grocer. Active.	Rheumatism. 5	Face puffy; p. jerking; pal.; dysp.; imp. doub.; jogging; murm. sawing doub. st.	Aortic obstruct. and regurg. ossif.	Great dil. some hyper. exc. ad. peric.	Dropsy.	Sank grad.*	Dr. Hope, *Dis. of Heart.*
16	M.	19	Unemployed. "Delicate."	Prob. 12	p. full resilient, "wavy"; cou.; dysp.; pal.; pain; im. str. heav'g; dull. ex.; m. dou. saw. g. st. car.	Aortic obstruct. and regurg. ossif.	Enorm. hyper. with dil.	Hæmoptysis.	Sud. death.*	Dr. Blakiston, *Dis. of Heart.*
17	M.	61	Cabinet mak'r (Intemp.)	Rheumatism. 3	p. 120 weak; dysp.; pal.; murmur grating blowing.	Aortic obstruct. and regurg. ossif.	Great hyper. w. dilat. ad. peric.	Atr. liv. dropsy.	Died.* sank. grad.	Dr. S. Alison, *Lond. Med. Gaz.*
18	M.	45	Laborer.	Rheumatism. 6	p. 72 full thrill.; pal.; distress; dysp.; cough; imp. diffent; murm. sawing.	Aortic obst., harsh, and regurg., soft. ossif.	Great hyper. w. dilat.	----------	Died sudd.*	Dr. Williams, *Lond. Med. Gaz.*
19	M.		Active.	16	Not mentioned. (Prostrated and then "let alone" for 16 years.)	Aortic. vegetations.	----------	----------	Died.*	Dr. Corrigan, *Dub. Journ.*

20	M. 40	----------	3	p. full bounding; pal.; pain.	Aortic. ossif. inverted.	Pericard Ad.	Angina. pec. aneur.	Sank grad.*	Dr. Hodgkin, *Lond. Med. Gaz.*
21	F. 30	Teacher. Feeble.	Rheumatism. 8	Face & eyelids puffy, livid; p. var.; pal.; dysp.; c.; im. b., swel.; dull. ex.; mur. apex. s. m. sy.	Mitral regurgitation.	Dilatation with hyper.	Amenorrhœa. slight heamopysis.	Living. delicately.	J. W. C., *N. Y. Jour. Med.*
22	M. 23	Clergyman. Moderate.	Rheumatism. 13	Face florid; p. nat.; pal.; imp. and dullness nearly nat.; murm. sys. ap. syr.	Mitral regurgitation.	Very slight hypert.	----------	Living. mod. exert.	J. W. C., *N. Y. Jour. Med.*
23	M. young.	Profession. Active.	Prob. rheum. 12	Distinct ap. mur. (bellows) palpita. when weakened by treatment.	Mitral regurgitation.	None mentioned.	----------	Living in excel. healt.	Dr. Stokes. *Dis. of Heart.*
24	M. old.	"Gentleman." Very active.	Not given. 4	"Loud rough mitral murmur."	Mitral regurgitation.	----------	----------	Hunting daily.	Dr. Stokes, *Dis. of Heart.*
25	F. 29	Unmarried.	7	p. small, interm.; pal.; dysp.; cough; murm. sys. apex.	Mitral regurgitation. obst. (ossif. contract.)	Rather small.	Dropsy. palsy.	Death.*	Dr. Watts, *Lond. Med. Gaz.*
26	F. 25	Servant. Unmarried.	5	Face livid; pal.; cough; murm. sys. ap.; 2d sound oblit. at apex.	Mitral regurg. ossif. contract.	Hypertrophy of right vent.	Dropsy. bronchitis.	Sank grad.*	Dr. Budd, *Lond. Med. Gaz.*
27	F. 29	Dressmaker. Single.	Rheumatism. 12	pal.; dysp.; cough; murm. sys. apex. rasp.	Mitral regurg. thickened.	Adher. pericard.	Pleurisy.	Died.*	Dr. Blakiston, *Dis. of Heart.*
28	M. 60	"Gentleman."	Rheumatism. 8	p. small, feeble; dysp.; cough; im. str.; murm. sys. ap. blowing.	Mitral regurg. thickened.	Great hyper. 22oz.	Dyspepsy. dropsical.	Sank grad.*	Dr. Furnivall, *Lond. Lancet.*
29	M. 40	Farrier. Moderate.	Fall. 8	p. irreg.; pal.; dysp.; cough; imp. diff.; murm. whiz. ap. sys.	Mitral regurg. thickened.	Great hyper.	Dropsy. jaundice.	Sank grad.*	Mr. Moore, *Lond. Lancet.*
30	M. 29	Spare, delic.	Pleurisy. 9	p. str. vib. in com.; pal.; pain; imp. str. heav.; dull. ex.; murm. doub. sternal.	Aort. mainly. ossif. Mitral slight. thick.	Enor. hyp. dil. ex. per. ad. wt. 44oz.	Frightful parox.	Died sud.*	Mr. C. King, *Dub. Hosp. Journ.*
31	F. 83	"Thin old woman."	Rheumatism. 8	p. 80 reg. feeble; imp. and dull. nearly natu.; murm. doub. saw. aortic.	Aortic mainly. Mitral slight. ossif.	Little change.	Bronchitis. pleuro-pneumon.	Sank grad.*	Dr. Semple, *Lond. Journ.*
32	M. 28	Prob. farmer. "Half" labo.	Rheumatism. 22	Imp. ex. str. (few details.)	Aortic mainly. ossif. Mitral slightly.	Enorm. hyp. dil. ext. per. ad. wt. 58½oz.	----------	Sank grad.*	Prof. Clark & Dr. Smith, *N. Y. Journ.*
33	F.	Married.	Parturition. 10	Face livid; p. sm. interm.; pal.; dysp.; imp. impercep. sounds short.; no murm.	Mitral contracted. Aort. very slight. thick.	Right dilat. left slight.	Pulm. ap. bronch. dropsy.	Sank grad.*	Dr. Hope, *Dis. of Heart.*
34	F. 26	Good consti.	Rheumatism. 3	p. freq. sm. irreg.; dysp.; dull. ext.; purring; murm. rasp. sys.	Mitral cont. aortic. ossif.	----------	Dropsy twice.	Sank grad.*	M. Forget, *Précis. Th. et Pr.*
35	M. 26	Robust.	Rheumatism. 5	p. sm. hard. resil.; slight bulg.; dysp.; pain; pur.; im. st.; jugu. pul.; murm. fugitive.	Mitral contract. ossif. Aortic thick.	Hyper. of both vent.	Dropsy.	Sank grad.*	M. Forget, *Précis. Th. et Pr.*
36	M. 28	Currier. Mostly active.	Rheumatism. 14	p. irreg. weak. latterly; pal.; dysp.; cough; imp. str. large; murm. bellows.	Mitral contract. ossif. Aortic insuf.	Great hyper. with dil.	Dropsy.	Died.*	*Lond. Med. Gaz.*
37	F. 45	Married.	Lifting. 3	p. 80 int.; pal. dysp.; cough; pain; imp. str.; murm. aort. doub. whiz.	Aortic mainly; mit. and tric. slight. cartil.	Much hyper.	----------	Died sud.*	Dr. Hallowell, *Hay's Phil. Jour.*
38	F. 19	Seamstress. Delicate.	Pulm. inflam. 3	p. 60; pall.; dysp.; cough; dull ext.; murm. apex. saw. sys.	Mitral contr. Aortic & tri. slight.	Hypertro. 12oz. Liver enlarg.	Pneumonia.	Sank grad.*	Bouillaud, *Mal. du Cœur.*
39	M. 21	Lawyer's clerk.	Rheumatism. 7	p. sm.; pal.; dysp.; constric.; bulg.; purring; jug. puls.; murm. apex. sys. saw.	Mitral regurg. veget. Triscusp.	Dilatation.	Dropsy.	Sank grad.*	Dr. Blakiston, *Dis. of Chest.*
40	M. 48	----------	Pulm. inflam. 8	p. sm. soft irreg.; pal.; imp. sternal; dull. r. ster.; dysp.; cough; *puls. jugulars.*	Tri. regurg.	Right. Hypert.	Hæmoptysis. pulm. ap. dropsy.	Sank grad.*	Mr. Tripe, *Lond. Lancet.*
41	F. 57	Delicate. feeble.	Mens. ceasa. 10	Dysp.; dull. r. stern.; insensibility.	Pulmon. contract. ring.	Right hypert. 12oz.	Palsy. ap. cer. soft.	Sank grad.*	Bertin, *Mal. du Cœur.*

Valves Affected.—This point was determined *anatomically*—as marked with an asterisk by post-mortem examinations in all the fatal cases, amounting to thirty, or about three fourths of the whole; and *clinically*, or by the murmurs, and other symptoms in the remaining eleven cases living. Both methods throw light upon the subject, and, to do full justice, where circumstances allow, both should be used. During life, and while our services are of value to the individual patient, of course only clinical tests of valvular disease are available. Did our limited space allow, we could offer, in detail, evidence to show, that occasionally the mitral or tricuspid valves, by a curative effort of nature, thicken and enlarge with the gradual increase in the size of the diseased ventricle, so that valvular murmurs or other signs may cease, and the valves be *refitted*. Such were some of the cases reported in the *Dublin Journal* by Dr. O'Ferrall. We have a patient now under observation, who was quite disabled with rheumatic disease of the heart with a loud mitral murmur a few months since, whose murmur has lately ceased, and who has returned to active labor. It is true these recoveries are the fortunate exceptions, and not the grave rule. But these repaired valves, working well during life, would be rejected after death as unsound, by the nice measurements of a mere morbid anatomist. On the other hand, as M. Forget has observed, valves may be really diseased and not, in every case, give forth murmurs or corresponding signs. As a fair compromise we may then adopt, for the present, the following classification, mainly anatomical, in enumerating the above, which, from the necessity of frequent reference, we arrange thus distinctly:—*Valves Diseased.*—AORTIC ALONE, 20; MITRAL ALONE, 9; AORTIC AND MITRAL, 7; AORTIC, MITRAL AND TRICUSPID, 2; MITRAL AND TRICUSPID, 1; TRICUSPID, 1; PULMONIC, 1.

Obstruction and Regurgitation.—Not merely as nice points in diagnosis, but as causing important differences in their results, do we notice these features. Obstruction, as we all know, is the term used where the narrowing or roughening of the orifices or valves of the heart impede the onward current of the blood, producing generally either a loud murmur over the aortic valves with the *first sound* of the heart; or, more rarely, a faint obscure murmur over the mitral valves with the *second sound*. Regurgitation, on the contrary, as we know, is the flowing back of the blood through the leaking or "insufficient" valves, spoiled and unfitted by disease, and commonly gives murmurs either over the aortic valves at the sternum with the *second sound*, or over the mitral valves at the apex with the *first sound*. Aortic obstruction and regurgitation are usually found together, from the roughness and leaking of the valves at the same time, and hence they affect both sounds, and cause a double or sawing murmur. It will be seen in the following classification of those specified in our list, that the cases with aortic obstruction alone and those combined with regurgitation were about equal, while aortic regurgitation without obstruction occurred but once; and that all the mitral murmurs were regurgitant:—AORTIC OBSTRUCTION ALONE, 9; AORTIC OBSTRUCTION AND REGURGITATION, 8; AORTIC REGURGITATION ALONE, 1; MITRAL REGURGITATION ALONE, 9.

Sex and Age.—It will be seen on inspection that about two thirds in the whole forty-one cases were males. This result was produced almost entirely by the preponderance of males in the large class of aortic cases, being in the proportion of three males to one female. In the mitral and other classes the sexes were about equal. Thus, of the forty-one cases, twenty-seven were males and fourteen females; of the twenty aortic, fifteen were males and only five females.

So also the commonly-received opinion that mitral disease attacks a younger class of subjects was confirmed. In the seventeen cases of aortic specified, the average age, rejecting small fractions, was forty years, while eight mitral only averaged thirty-two years. The remaining ten miscellaneous, and the whole forty-one cases, averaged thirty-nine years.

Condition, Exertion.—One of the most painful duties of a physician is to be obliged to paralyze an active and useful patient in the pursuits or amusements of a life-time, to palliate incurable disease; yet our prognosis in heart affections sometimes partly depends on whether a man is rich or poor; or, in other words, whether he can afford to be quiet, or whether he must fret and toil hardly for his daily bread. Singular anomalies sometimes occur, setting at naught all calculation. A few with cardiac disease can endure surprising physical exertion, while the majority are either injured or destroyed by violence or excitement.

In the above list the physical capacity of the patient is sufficiently defined for classification in twenty-one instances. Of these there were unembarrassed and "*active*," seven aortic and two mitral; "moderately active," three aortic, two aortic and mitral, one mitral and one pulmonic; "*moderately disabled*," two aortic and mitral and one aortic; "*disabled*," one aortic and one mitral. The most physical exertion with the least embarrassment was borne in aortic or mitral difficulties with little or no hypertrophy, while in some cases of extensive enlargement with aortic lesions very considerable exercise was permitted.

Causes.—The etiology of disease of the heart has latterly acquired unusual interest. Pathologists generally were prepared to yield by far the largest share of the origin of cardiac difficulty to rheumatism, when they were startled by the announcement by Dr. Taylor, in the *Medico-Chirurgical Transactions*, that among the frequently-intemperate patients of a London Hospital, in thirty-one cases of pericarditis, nine if not eleven were associated with Bright's disease. With other observers since, the proportion has been less. Whatever may be its influence in acute affections, Bright's disease only occurred in the above list of protracted cases once, at the close of a case, whose end it seemed to hasten, while in the twenty-nine instances in which the causes are named, twenty were from rheumatism, four from pulmonary inflammation, and three from violence. Two thirds are thus assigned to rheumatism and one tenth to pleurisy and pneumonia.

Duration.—Under the vague apprehensions that have prevailed, this is one of the most interesting points in the whole discussion. For reasons to be explained, we shall group our cases differently under the

head of prognosis. The reader will find vague speculations on this subject in the contributions of Valleix,* Williams and others, but we are not aware that the *differential* duration of the several forms of valvular disease have before been made the subject of careful estimate. We are exploring, then, new and difficult ground. To be perfectly accurate, we need larger numbers. We cannot but regard these figures however as a valuable approximation toward the average limit of the most favorable class of cases of valvular affections. We did not expect so hopeful a result even with the best.

In round numbers, the average duration of these forty-one selected cases, it will be perceived, reaches the extraordinary term of nine years. Allowing for the probable addition in eleven patients still living at the time of the report, amounting to over one fourth of the whole number, we might be safe perhaps in rating the *probable* average duration of these forty-one favorable cases at the easily-remembered figure of *ten years.* It will be seen that the longest in duration as a class, are those with aortic obstruction alone, and the shortest are those in which valves of the right and left side are simultaneously involved. Smaller fractions are rejected. The results are so interesting that, for convenient reference, we state them in the following distinct form :—

AVERAGE DURATION.

Nine cases of Aortic Obstruction	10½ years.
Eight do. of Aortic Obstruction and Regurgitation	8¼ "
Nine do. of Mitral Regurgitation	8½ "
Seven do. of Aortic and Mitral	10 "
Six do. of Miscellaneous	6 "
Three do. of right and left simultaneously . . .	4 "

Symptoms.—The *face* is often a valuable index in disease of the heart. If Nature in her efforts has just compensated for the obstructed or leaking valves by strengthening the ventricles and *no more*, then the face may be *natural;* if she over-does the matter, and there is more hypertrophy and more power than is needed, then the cheeks may be unusually florid and the lips freshly ruby. Where there is excess of hypertrophy, with aortic valvular disease, there is sometimes a *protuberant staring expression of the eye,*—a symptom of organic cardiac disease, by the way, which we supposed for years to be a little discovery of our own, till at last we noticed it was mentioned in a late edition of Dr. Walshe. It somewhat resembles the bright bulging eye with swelling of the thyroid gland described by Drs. Graves and Stokes as peculiar to certain functional cardiac affections. A puffy appearance of the eye-lids is sometimes noticed in heart disease with a tendency to edema. As consequences of valvular affections, too, we may have the pale chlorotic features and bloodless lips of passive dilatation; the jaundice of a disordered liver; the waxy, cancerous hue of Bright's disease; the distortion of palsy, and especially the *livid dusky or purplish lips and face,* generally either from the pulmonary congestion

* *Guide du Medécin Practicien.*

of too free mitral regurgitation or hypertrophy of the right ventricle. The appearances of the face and eye which happen to be mentioned in the above list, with the corresponding valvular affections, may be thus enumerated: *Fresh or florid*, aortic obstructive, 2; Aortic regurgitant, 1; Mitral regurgitant (with slight hypertrophy), 1; *Bulging bright eye*, aortic obstructive and regurgitant, 2; Aortic regurgitant, 1; *Puffy* appearance, aortic obstructive, 1; Aortic obstructive and regurgitant, 1; Mitral regurgitant, 1; *Livid or dusky*, Mitral regurgitant, 2; *Distorted*, Aortic obstructive, 1.

The pulse was noticed in thirty-two cases. It was "jerking," or "thrilling" in nine instances, all with aortic valvular difficulties, and all of which were regurgitant. As a general characteristic, it will be perceived that the pulse was harder and fuller in aortic valvular affections than in mitral difficulties, which tended to render it smaller and weaker. We can understand this from the fact that mitral regurgitation acts on the principle of a leakage or rent in an India-rubber bag, while mitral obstruction would diminish the supply. Intermittent pulse often exists from idiosyncrasy in health, or temporarily, in mere functional disturbance of the heart. In the above list the pulse was intermittent or irregular in nine instances, of which more than half had mitral disease, either singly or combined, and as the whole number of protracted mitral affections were not quite half as numerous as the aortic, it follows that either a weak, small, or intermittent pulse is most frequently characteristic of mitral disease.

Palpitation has been defined to be the sensation of unusual or painful action of the heart, generally occurring in paroxysms. It is by no means confined to organic disease. In the above list it is one of the most frequently noted of the symptoms, being found in thirty-two instances pretty equally distributed through all forms.

Precordial Pain seemed caused mainly by the pressure of the enlarged heart, as in aneurism, and especially the violence of the knocking impulse. In proof of this view we have the fact that in seven of the eight instances in which precordial "pain" is recorded above, there were also strong impulse and large hypertrophy, and in the solitary case where they are not mentioned, only two or three symptoms are given, and both these may be inferred from the "full bounding impulse." All these eight illustrations were wholly or partially aortic, while not one of the cases of mitral disease alone had pain.

Precordial Bulging, though often overlooked from its requiring careful inspection in front and laterally, seems also to depend on the same causes. Both the instances in which it occurred above, were aortic with large hypertrophy.

The Impulse of the heart was noted in twenty-six cases. Though temporary variations from the natural standard are frequent in mere functional disorder of the heart, yet when these are attended with an increase in the area of the dull precordial region, they become certain indications of organic enlargement. It is curious to notice above that the force of the impulse is affected by the character of the valvular lesion. Of the thirteen instances in which the impulse is marked strong or heaving, twelve are aortic, and only one purely mitral, and in

this last it may have been from adherent pericardium. The seven cases most forcible or heaving are all aortic, and, with the exception of one purely obstructive, all, either combined or simply, have aortic regurgitation. Of the cases comprising five marked "moderate," one (mitral and tricuspid) "feeble," and six without undue force, as simply "extensive,"—eight, or two thirds, were wholly or partially mitral. There are natural reasons for these differences. The aortic valves are the gates to the whole arterial system, and they require a larger, firmer heart, and a stronger impulse to make up for their deficiency. Beside, in free mitral regurgitation the ventricle empties itself, in contraction, more easily through the additional orifice, opened by disease, than the single natural outlet in health, or when the mitral closes perfectly. Hence the impulse of aortic disease is stronger, and of mitral, weaker.

The Purring Tremor, or *Fremissement Cataire* of Laennec, occurs, as is well known, most frequently in mitral disease. In affections of the aortic valves it is supposed that the intervention of the sternum prevents this peculiar vibratory sensation to the hand, similar to that from the purring of a cat. In the three cases in which it was above mentioned, there were mitral and aortic, 1; mitral and tricuspid, 1; and aortic obstructive, 1.

Apex and its dull Space.—To the rule laid down by Hope and others that the apex of the heart should point, in health, just above the sixth rib, two inches below the left nipple, and one inch to its sternal side, we have sometimes added, as a less variable standard, the measurement of three and a half inches to the left of a line in the center of the sternum, as the center of the apex and its dull space. Although the dull space, over the apex, of one and a half or two inches, is nearly circular in health, yet, on delicate percussion, when enlarged by disease, it is sometimes imperfectly triangular or oblong. The number of inches mentioned in some of the cases above refers to the *average* diameter.

Pulsation of the Jugulars.—As is well known, this is the great diagnostic test of regurgitation, or insufficiency of the tricuspid valves. With every contraction of the heart there is a wavy pulsation, easily recognized by the eye, in the jugulars, which, with the other veins of the neck, are in this case generally enlarged. This sign is noticed above in three cases.

Accented second Sound.—The importance of this sign, we believe, was first pointed out by Prof. Skoda.* He states that in mitral regurgitation and obstruction, on applying the ear over the pulmonic valves the second sound of the heart is prolonged and intensified. We have frequently noticed this sign, when there was bronchitis or congestion of the lungs from embarrassed circulation in other varieties of valvular disease. This last almost always occurs in serious mitral disease of either kind. The accent is a delicate test, when slight, and

* *Abhandlung über Perkussion und Auskultation.*

easily overlooked. In both the instances in which it happened to be noted above, there was aortic difficulty alone.

Valvular Murmurs.—A glance at the above table will confirm the general doctrine that aortic murmurs, as a class, are usually more harsh than mitral. Dr. Hope recognized this principle in comparing the blowing aortic murmur to a whispered "awe," and the mitral to a softly breathed "who," on a lower key. But these are doubtless much modified and varied by duration, becoming as a general rule more harsh and loud. We fancy that mitral murmurs are generally the most liquid or moist in their character.

In the thirty-four instances, in which the character of the murmurs were given above, there were, "Sawing," Aortic, 9; Aortic and Mitral, 1; Mitral, 1; Mitral and Tricuspid, 1; Mitral Tricuspid and Aortic, 1; there were "*Rasping*," Aortic, 5; Aortic and Mitral, 1; Mitral, 1; "GRATING" Aortic, 3; "*Bellows*," Aortic, 1; Mitral, 1; Mitral and Aortic, 1; "*Muffled syringe*," Mitral, 2; "*Whizzing*," Mitral, 2; "Loud rough" Mitral, 1.

Thus sixteen out of the entire aortic seventeen were either sawing, rasping or grating, while only two mitral out of nine were harsh; one rasping and one loud rough. Under another head we have stated in detail that the aortic obstructive murmurs alone, and obstructive and regurgitant together, were about equally divided—there being nine of the former, and eight of the latter—while the whole nine mitral were regurgitant.

In more acute or recent valvular lesions, before the heart has time to be enlarged or displaced, the sound of valvular murmurs is carried but a short distance by the stream of blood. Hence obstructive aortic murmurs are almost invariably loudest at the *right edge* of the sternum over the origin of the aorta near the junction of the second rib; while the murmur of aortic regurgitation, especially when free, is often loudest at the *left edge of the sternum* a little lower down and near the middle of the heart.

In the above list, probably from the great hypertrophy in protracted aortic disease crowding the heart upward, all the *aortic* murmurs, except one case of obstructive bellows murmur, were *loudest* at the *right edge of the sternum.* In two cases the aortic murmur was also heard in the carotids. The nine *mitral* murmurs were all loudest at the usual seat, a little upward and outward toward the left nipple, over the *apex of the heart.*

Diagnosis.—Our highest aim in this discussion is simply to be useful. If, from a vivid recollection of such difficulties ourselves, for the encouragement of some of those younger students of the profession who have at times so kindly listened to our humble teachings, we try to arrange, more clearly, technicalities and elementary distinctions in the study of heart disease, quite common-place to others; and if we wander from dry facts and figures to familiar illustrations; we hope after this frank confession to be forgiven.

One half the cases of derangement of the heart for which we are consulted in private practice especially, are simply functional affections.

It is very easy to mistake the slight aortic blowing or whiffing of anemia, or the distressing palpitation and violent impulse of mere temporary functional irritation, or congestion, or debility of the heart, for organic valvular disease, and its almost invariable associates, hypertrophy and dilatation.

We may be excused then, for repeating the following analysis, partly from Canstatt,* which we adopted in an article in this Journal sometime since on "Functional and Sympathetic Affections of the Heart."

In Functional Heart Affections:	*In Organic Heart Disease:*
Præcordial dullness on percussion is not permanently *extended*, nor the *apex displaced.*	*Præcordial dullness* in enlargement is permanently *extended*, and the *apex crowded* to the *left.*
The *impulse* in *plethora* is strong *bounding;* in *irritation*, smart *knocking;* in both, widely jarring; in *debility*, small, soft *tapping*, sometimes *hurried.*	The *impulse* in *hypertrophy* is strong, broad *heaving;* in *dilatation*, weak, wide *flapping;* in both together, strong, large *bulging;* in all with *extended dullness.*
The whole *movement* of the heart is more *elastic*, *light*, or *easy.*	The whole *movement* of the heart is more *dead*, *clumsy*, or *labored.*
Functional murmurs are *soft blowing*, *aortic* and *systolic;* are from *anæmia*, and usually with the venous hum in the neck.	*Organic murmurs* are *harsher*, *louder*, often *grating*, *aortic* or *mitral*, *systolic* or *diastolic*, or both, and very rarely with *anæmia* or venous hum.
Functional is more *paroxysmal.*	Organic is more *uniform.*
Active exercise is often well borne, and benefits.	Active exercise always *aggravates.*
The *causes* are mainly *dyspepsy*, *anæmia*, *plethora*, *nervous* or *sexual derangement.*	The most common *causes* are, first, *rheumatism;* and next Bright's disease.

The diagnosis of protracted valvular disease, though liable to a little uncertainty from a few rare imitations of some of its murmurs by merely calcareous roughening of the aorta, is *generally* much more easy than that of recent cases, from less liability to be confused by the friction or churning sounds of acute pericarditis; while with longer duration, as the above list shows, the murmurs, as a rule, become more *distinct* and *harsh.*

We may account for this mainly by the tendency of thickening and other changes consequent on rheumatic endocardial inflammation to become gradually hardened by time, and to degenerate or mingle gradually with either cartilaginous and calcareous, or, to use a more common term, with *ossific deposits.*

Although Dr. Hope discourages the views of Laennec, Bouillaud

* *Pathologie und Therapie.*

and others, that the character of murmurs is any certain test of the nature of the morbid change, yet a careful inspection of the above list leads to the view, that, as a rule liable to occasional exceptions, we may adopt the following standard from the very recent observations of M. Forget.*

Induration.	*Murmur.*
Inflammatory.	Soft.
Fibrous or cartilaginous.	Harsh (*rude.*)
Osseous.	Very harsh.

Diastolic Murmurs, from the want of propelling force, are much more feeble than the systolic or contractile, on the same principle that murmurs sometimes cease altogether in the last stages of heart disease from absolute weakness of the organ.

Pulmonic Valvular Disease only occurs once in hundreds of cases, and, in the very few instances on record, it has sometimes been characterized by a superficial murmur from the middle of the sternum to the junction of the second rib.

Tricuspid Valvular Disease, beside being much less frequent than aortic or mitral, is generally characterized by the *pulsation of the jugulars* and swelling of the veins of the neck being easily recognized. Murmurs are generally absent. In the rare instances in which tricuspid murmurs are present, they are soft—to the middle or right of the sternum, heard lower down than aortic, sometimes even near the xyphoid cartilage.

We have met with pulsation of the jugulars, but never with a tricuspid murmur. Excluding then, in practice, murmurs of the right valves of the heart as almost never occurring, except in the few rare cases when attended by the plainly visible tricuspid pulsation of the jugulars, we are practically narrowed down to those of the valves of the left side of the heart, and the following murmurs, for some of which, for brevity, we coin new terms.

Left, or Ordinary Valvular Murmurs.

STERNAL OR AORTIC.	APEXIAL OR MITRAL.
Are loudest usually over the *right edge* of the sternum, or the junction of the second rib, or more rarely at the *left edge* of the sternum below the third rib.	Are loudest invariably over the apex of the heart, toward the left nipple.
Obstructive, are usually loud with the *first sound* of the heart, are common; and sometimes heard in the carotids.	Obstructive, are always soft, faint, with the *second sound* of the heart, and rare. No mitral murmurs are ever heard in the carotids.

* *Prècis Théorique et Pratique des Maladies du Cœur.* Strasbourg, 1851.

Regurgitant are with the second sound of the heart,—and common. Both obstructive and regurgitant are with both sounds, or a double sawing murmur.	Regurgitant, are usually distinct, always with the first sound of the heart,—and common.
As a class are harsher, and more superficial.	Are more frequently with a purring tremor.
Are usually with a harder pulse—when regurgitant often thrilling or wavy, and with a vermicular motion of the superficial arteries.	As a class are more liquid, or soft and deep.
Have usually a fresher or more florid face, sometimes with a bright staring eye.	Are usually with a softer, smaller pulse, often intermittent, and never with a visible waving of the arteries.
Have commonly a stronger impulse.	Have usually a more livid and "puffy" face.
	Have commonly a feebler impulse.

Prognosis.—The greater part of this discussion, treating only of the most propitious class of cases, has necessarily all along involved more or less this topic. Hence we may be brief. If the above list be a fair representation of this class, every feature not usual in all other classes that predominates in this is *favorable*, and every ordinary symptom, complication or variety of valvular disease in general, which is less frequent or wanting in this, is in a corresponding degree *unfavorable.*

Let us make, if possible, a fair estimate of all varieties of valvular disease, usually prevalent. Dr. Barclay, in a very able paper, in the *Medico Chirurgical Transactions*, founded upon careful examinations of seventy-nine cases in St. George's Hospital, infers that rheumatic cardiac inflammation is rather more apt to affect the aortic and mitral valves simultaneously than either singly. We may blend his estimate with others as follows:

	VALVES AFFECTED.			
Authority.	Aortic and Mitral.	Aortic alone.	Mitral alone.	Total.
Dr. Barclay,	36	26	17	79
Dr. John Reid,	6	17	9	32
M. Forget,	10	9	10	29
	52	52	36	140

These observations were all made in large hospitals, and it must be borne in mind refer mainly to the acute class of cases. Several years later, M. Forget stated, he had largely repeated his researches with about the same numerical results. In 1844, in a paper read before the Royal Academy of Paris, he remarked that in several hundred cases he had met with one instance of tricuspid disease; and Dr. Reid only met one in thirty-three cases, while Dr. Blakiston, by very nice measurements among the operatives of Birmingham, professed to have found fifty-four tricuspid cases to fifty-seven mitral. The truth

is probably between these extremes. Not one of Dr. Blakiston's cases lasted three years. The four we have enumerated above have a low average duration. Admitting, then, that the three classes first named are about equal, it follows, that if the aortic are doubly as numerous in the protracted list as either of the others, that *aortic valvular disease in general is the most favorable form.* This rule is modified in a few instances by hypertrophy. Where little or no enlargement is produced by the valvular disease, it is a sign the latter acting, as the cause is slight. Hence the most favorable of all cases, either aortic or mitral, are those with *least* increase in the size of the heart. When hypertrophy is rendered necessary by the extent of the valvular lesion, the heart must be strengthened and enlarged to relieve the embarrassed circulation. It often acts as a compensation and benefit in serious aortic disease, while the increase of force only increases mitral regurgitation and consequent danger of pulmonary congestion. Hence hypertrophy is much better borne in aortic than mitral disease.

The clinical enumeration of valvular affections, as we have before hinted, differs somewhat from the anatomical. The more rare cases of tricuspid disease are commonly easily recognized by the jugular pulsations. But it is almost impossible to distinguish accurately during life, the compound aortic and mitral cases, for the reason that the principal disease and the *murmurs* are generally confined to one, while the other is often but slightly affected and gives no murmur. The seven aortic and mitral cases mentioned in the above table, if judged during life by murmurs alone, would probably have been about equally divided between aortic and mitral. For prognosis at the bed-side living signs only are available; and a nice calculation from the above list will show that this last practical division would not have materially affected the chances of a patient. When the longest average probable limit of the most promising class is only about ten years, the term "favorable" is but relative. With this understanding, without waiting to detail the facts and reasonings on which they depend, we may lay down a few general rules liable to some excepceptions, under the simple clinical division indicated.

PROGNOSIS OF VALVULAR DISEASE.

Most Favorable	*Less Favorable.*	*Unfavorable.*
Slight aortic obstruction.	Aortic obstruction and regurgitation, with very large hypertrophy or dilatation.	Mitral obstruction.
Slight stationary mitral regurgitation, with little or no enlargement.	Especially *free* mitral regurgitation, with large hypertrophy, or dilatation.	Tricuspid disease,—especially when combined with left valvular lesions.
Face unaffected, or a little florid.	Face slightly livid.	Face very livid, or *cachectic.*
Freedom from pulmonary congestion, hemorrhage or dropsy.	*Severe* pulmonary congestion, hemorrhage, apoplexy, anemia, dyspepsia, or *dropsy.*	*Brights disease,* (*very*) or enlarged liver.
Avocation healthy, with gentle exercise. without straining or excitement.	Avocation unhealthy, with violent straining or excitement.	Simultaneous aortic and mitral murmurs, or plain signs *during life* of disease of more than the aortic or mitral valves *alone.*

Anatomical Characters and Cardiac Complications.—Ossification, or calcification, as it is latterly termed, occurred in thirty cases examined,—at the aortic valves twelve, and the mitral seven times. Other changes were represented as follows:—"Cartilaginous" aortic, 3; mitral, 1; "thickening" mitral, 4; aortic, 2; "vegetations" aortic, 1; mitral, 1; "induration" aortic, 1; "inversion" aortic, 1. Contractions of the orifices were,—Mitral, 5; pulmonic, 1. All the cases of extensive hypertrophy were, of course, combined with dilatation. "Large hypertrophy" was thus represented,—Aortic alone, 13; aortic and mitral, 5; mitral alone, only 2. "Moderate hypertrophy" stood,—aortic, 2; mitral, 1; tricuspid, 1; pulmonic, 1; extensive "dilatation" aortic, 2; aortic and mitral, 2; mitral, 1.

Right hypertrophy occurred only four times, and right *dilatation* alone only once, and in each there was either mitral contraction, tricuspid regurgitation, or pulmonic constriction. Adhesion of the pericardium, more or less extensive, occurred no less than eight times. Thus it appeared that the most frequent valvular lesion was calciferation, or ossification, which occurred in about two thirds of the cases examined. Dr. Barclay, in his analysis of seventy-nine cases of valvular disease, and one hundred and thirteen instances of atheroma in general, in the *Medico-Chirurgical Transactions*, found that fibrinous deposits occur almost exclusively under thirty-five years of age, while atheroma and ossification as certainly prevail after that period. The average age of the above forty-one cases being thirty-nine years, the prevalence of ossification may be thus explained.

Other Complications.—Dropsy was much the most prevalent in mitral disease, singly or combined; the numbers being,—Mitral, 4; mitral and aortic, 5; tricuspid, 1. Rather singularly, pulmonary hemorrhage occurred in aortic four times, and only once in mitral; while pulmonary inflammation in different forms occurred seven times, mainly in simple or complicated mitral disease.

In more rapidly fatal cases, Dr. Blakiston found that of twenty-seven deaths in valvular disease from pulmonary congestion twenty-four had "incompleteness of the mitral valves." Enlargement of the liver, so frequent in more rapid cases, is only mentioned once. Bright's disease also complicated but a single case just at the close.

Apoplexy occurred once only in aortic disease and palsy three times,—one aortic, one mitral, and one pulmonic. Angina pectoris was one aortic, and one aortic and mitral. The other complications were briefly,—deafness, 1; enlarged spleen, 1; atrophied liver, 1; dyspepsia, 1; scrofula, 1; sciatica, 1.

Results.—Eleven of the forty-one cases were still living, of which seven were aortic and four mitral. The most curious problem was the manner of death. It is well known that a very general impression prevails that the *majority* of cases of disease of the heart die suddenly.

In this enumeration we mean by "sudden death" those examples in which the patient is tolerably comfortable, able to exercise and *leave his room*, and, without any particular warning, falls or faints and expires.

By "gradual sinking," we mean those instances in which pulmonary congestion, dropsy, or some other complication, by degrees weakens and warns the patient till he is *confined to his room*, and sinks more slowly in death.

Of twenty-three cases in which the manner of death is recorded, only seven died "suddenly," while the remaining sixteen cases all "sank gradually." Of the examples of sudden death, there were,—Aortic, 5; and aortic and mitral ("mainly" aortic) 2. The instances of gradual sinking were,—Aortic, 4; mitral, 3; aortic and mitral, 5 (three mainly mitral); mitral and tricuspid, 1; mitral, aortic, and tricuspid, 1; tricuspid, 1; pulmonic, 1. So far as this limited number warrants, we may draw the important practical inference that the proportion of *less than one third died suddenly*—that every one of these sudden deaths was connected more or less with *aortic valvular disease*.

No less than eight cases of the gradual deaths, or two thirds, were more or less connected with *mitral disease*.

We can account for the frequency of the sudden termination of aortic disease, by recollecting the frequency with which it interferes with the functions of the brain, rapidly overcharging with apoplexy, or more frequently cutting off its supply of blood by fainting, from which the patient never recovers. Mitral disease and lesions of the right heart, on the contrary, kill more slowly, by congestion of the lungs and dropsy.

We may lay it down as a rule, perhaps, that while the average chances for longer duration of life are somewhat greater in aortic disease, the probabilities of sudden death are also *increased*.

Treatment.—We cannot close this plain, practical article, without a few thoughts on this topic, so interesting to the earnest practitioner. It was found impossible to compress the details of the management of the above cases, for many years, into any convenient form. So we venture a few comments from general observation. It will be remembered we are considering but a single class of heart affections, for which nature does most, and art the least. And when Nature is doing her work well, the greatest favor is to let her alone. We have managed cases of protracted valvular disease for years, simply by careful regimen. Yet, contingencies sometimes arise when it is necessary to interfere more actively, and we may briefly consider our agents.

Depletion in protracted valvular disease is very rarely allowable, on account of the tendency to sudden death by syncope, or subsequent anemia; general bleeding, often of great service in acute cardiac inflammation, is scarcely ever well borne. We remember an intelligent Vienna friend, who, from long observation in the chest ward of its immense *Algemeine Krankenhaus*, declared that a single injudicious bleeding was often the commencement of the "decline and fall" of cases of valvular disease, leading to dropsy or sudden syncope.

In the apoplexy, pneumonia pleurisy or pulmonary congestion, sometimes arising as secondary affections, if the *impulse* is firm we may deplete cautiously, always preferring, when adequate, cupping or

leeching. Dr. Chevers has laid down an excellent rule, that we may observe the same caution in depletion in the secondary inflammations and congestions of heart disease, that we would in those of tubercular consumption. It is sometimes good to deplete locally, while we support generally. Ought we to strive by depletion to diminish the hypertrophy which nature has established to relieve the embarrassed circulation? We believe not—unless danger to life from injury to other organs is actually present, and the strength of the impulse permits. The cases mentioned by Dr. Hope and Laennec as relieved by repeated small bleedings, cupping, and low diet, were probably simple hypertrophy, with little or no valvular disease. Dr. Latham seems to think these were cases of congestion, or "mock hypertrophy." On account of the tendency to syncope in aortic disease, as a general rule, we think that mitral difficulties with a sufficient impulse bear depletion best. On account of the fright and shock of cupping, we prefer the repeated application of two or three leeches at a time over the heart, if necessary, to moderate its violence.

Alteratives.—Can we change or absorb the firm or indurated deposits of valvular disease by mercury, iodide of potassium, or any medication? We think not. Blue mass., taraxicum, and the iodide of potassium guarded with vegetable bitters and tonics, will sometimes relieve, temporarily, the torpid and congested liver, sometimes the result of disease of the heart.*

Counter-irritation.—Slight irritation with croton oil, or the application of a blister, the size of a cent, dressed with belladonna ointment, will sometimes relieve a painful and irritable heart. But there is an objection to powerfully directing the morbid mind of the patient to that spot. An issue upon the arm near the insertion of the detoid will sometimes benefit.

Sedatives.—Digitalis, rather extravagantly termed by Bouillaud the "opium of the heart," in acute inflammation of that organ, must be used with the greatest caution, and watched very closely; in chronic valvular difficulties, on account of the tendency to produce fatal depression and syncope, we prefer, generally, to economize and guard it by the addition of the tincture of henbane, or hop, with preparations of iron or bark. A very good form is, equal parts of tincture of digitalis, hyoscyamus, and iron, of which, half a dram may be taken three times a day. In dropsy, as we know, it operates best as a diuretic in the form of infusion. Like bleeding, we think digitalis better borne in mitral disease, with sufficient impulse, than aortic. Hyoscyamus, conium, and lupuline in different forms, combined with bitters and tonics, have at times been serviceable in quelling the irritable heart. Dr. Walshe speaks very highly of the tranquillizing effects of the eighth of a grain of the extract of aconite three times a day. Great relief is sometimes obtained from the free use of belladonna ointment over the heart three or four times a day. We frequently combine equal parts of the extract with stramonium ointment.

* The rheumatic muscular pains of the chest, sometimes located about the heart in these cases, are best relieved, so far as we know, by giving four or five grains of the iodine of potassium with ten drops each of the wine of colchicum and the tincture of hyoscyamus, and a drachm of the tincture of cinchona in an aqueous mixture, three times a day, well diluted.

Diuretics.—In the dropsy sometimes supervening, infusion of digitalis, economized and qualified by the tincture of squills, and guarded by bark, iron or other tonics, may be cautiously given. In edema and hydrothorax five grains each of the iodide of potassium and the extract of taraxicum with a drachm of the tincture of bark, in an aqueous mixture, three times a day, well diluted, are very serviceable.

Stimulants.—Persons affected with cardiac affections, are specially subject to attacks of fainting, and palpitation, with a sense of sinking, brought on by a little imprudence in diet, by over exertion or mental excitement. We know of nothing better for these than the ordinary stimulants, Hoffman's anodyne, brandy or ammonia.

Tonics.—Allowing for a proper excess above the natural standard, to carry on the embarrassed circulation, as we have before hinted, we believe that the *impulse is the true pulse of the heart*, giving us in urgent complications, with certain allowances, the best guide for depletion, soothing, or support. Especially when the impulse is feeble, tonics are always required. When it is remembered how large a proportion of the above cases either died suddenly, probably from syncope, or were worn out and debilitated, as described by the phrase "sank gradually;" it will be seen how largely, when any treatment is required, a tonic course should generally prevail in protracted valvular disease.

The experiments of Weber and Lombard have shown that strychnia locally applied, produces tonic contraction in the heart of the dead frog. From considerable experience we venture to recommend it—to paraphrase the rather enthusiastic expression we have just quoted,—as the *tonic of the heart.*

It should be given, as in some forms of epilepsy, in very minute doses, long-continued. We prefer giving it in from one fourth to one half the usual quantity, or from the eightieth to the fortieth of a grain, continued for weeks and months. It gives tone to the faltering organ, and especially relieves atonic dyspepsia, often so troublesome, and gives the patient new appetite and spirits. The most convenient and equal form is either a solution of one grain of strychnia to six drachms of water and two drachms of acetic acid, or, what is sometimes better in dyspepsia, from its vegetable bitter, the strong tincture of nux-vomica. Either may be given alone, in doses of from five to fifteen drops three times a day in water. They may be combined with preparations of iron or other tonics. Next to this, especially in anemia, or passive congestion, we trust in preparations of iron. Gentian, columbo, cinchona, and all the usual list may be exhausted if necessary. The avoidance of undue mental excitement or violent muscular exertion, great care in using nutritious easily-digested food, gentle walking, or carriage exercise, are all necessary.

As a rule, we are convinced that protracted valvular disease is commonly over-treated. Like its neighbor, the stomach, the heart is often unnecessarily persecuted. We believe it a safe, honest rule in medicine, and especially in these affections, when *nothing is to be done to do nothing.*

CONCLUSIONS.

The careful consideration of these forty-one cases of the most favorable and protracted examples of different forms of valvular disease of the heart, impartially selected, tends more or less to establish the following recognized, or new propositions:

1. That in protracted valvular diseases, aortic lesions are twice as numerous as any other class; aortic obstruction alone and aortic obstruction with regurgitation nearly equally divided, forming about one half; mitral regurgitation nearly one fourth; aortic and mitral combined, one sixth; and simple or complicated affections of the right valves, about one eighth.

2. That owing to the excess of three males to one female in the large aortic class, two thirds of the whole were males; and that the average age of the whole, rejecting fractions, was thirty-nine years; of the aortic alone, forty years, and of the mitral alone, thirty-two years.

3. That in both ability for exertion and *duration*, the aortic on the whole excelled; each being greatest with either slight aortic obstruction or limited stationary mitral regurgitation, with the *least hypertrophy;* enlargement being best endured in the aortic class; and that the average duration of the forty-one cases reached the extraordinary term of nine years; nine with aortic obstruction averaging ten and a half years; eight with aortic obstruction and regurgitation, eight and a quarter years; seven of aortic and mitral combined being ten years; and three of right and left valves simultaneously, being four years.

4. That of twenty-nine cases in which the causes were mentioned, twenty, or about two thirds, were from rheumatism, four from pneumonia, or pleurisy, and none from Bright's disease.

5. That the *aortic* differed from the mitral in having, more often, florid face, bright protuberant eye, jerking, thrilling, or firm pulse, precordial bulging and pain, strong impulse, harsh grating or sawing murmurs *always sternal*, more frequent and large hypertrophy, and more cerebral complications; while the *mitral*, on the contrary, were more liable to a livid or puffy face, softer, smaller and more intermittent pulse, feebler impulse, more liquid murmurs *always apexial;* less hypertrophy, and more frequent pulmonary complications and dropsy.

6. That in *Prognosis*, from their presence or absence in these cases, were variously rated, with some exceptions, the following characteristics: *most favorable*, slight *aortic obstruction* or limited stationary mitral regurgitation with little or *no hypertrophy*, a natural or florid face, and a healthy easy avocation; *less favorable*, aortic obstruction and regurgitation, or *free* mitral regurgitation with large hypertrophy, excessive pulmonary congestion or dropsy, and an unhealthy straining or anxious avocation; *unfavorable*, mitral obstruction, tricuspid with left valvular lesions, or disease of any two sets of valves sufficient to produce murmurs from both during life; Bright's kidney, a livid or cachectic face, or enlarged liver.

7. That eleven cases at the time reported were still living; and that of the thirty fatal cases only seven—all purely or mainly aortic—were mentioned as dying "suddenly;" while sixteen, principally mitral,

"sank gradually;" and that in the thirty post-mortem examinations, beginning with the most frequent, there were found the following cardiac pathological changes: hypertrophy with dilatation, ossific deposits or calcification, adherent pericardium, valvular thickening, cartilaginous induration, and vegetations.

8. That in the treatment of *protracted* valvular disease, we must avoid as far as possible thwarting the restorative operations of nature, by depressing with bleeding or digitalis; these, when required by dangerous complications or secondary inflammations, being used cautiously as in pthisis, and on account of less liability to fatal syncope, being best borne in mitral disease with sufficient impulse; that many cases only require careful regimen for years; that allowing a certain excess above the natural standard to carry on the embarrassed circulation, the *impulse is the true pulse of the heart*, indicating, especially when feeble, the need of support; that when any interference is necessary, tonic and soothing remedies are far the most frequently required; and that the most valuable tonics to sustain a failing heart are first, *strychnia* or *nux-vomica*, in from one fourth to one third the usual minute doses long-continued, and next, preparations of iron with mild sedatives and bitters.

PART SECOND.

FOREIGN MEDICAL RETROSPECT.

PRACTICAL MEDICINE.

On the Diagnosis of Tumors within the Cranium.—Dr. Friedreich has recently published a very interesting monograph on this subject, containing the particulars of 45 cases of intracranial tumors, 11 of which were observed by himself; and on these he has founded some valuable remarks as to the mode of their diagnosis. The following is a brief resumé of his observations on these points. He considers

1*st. The General Effects of Intracranial Tumors.*—Various derangements of sensibility occur. One of the most constant of these is *headache*, which is especially frequent in the early stages of the disease. The cephalalgia is remarkable for its persistence and intensity; it may be either continuous or intermittent; and it may be accompanied by *vertigo* and *vomiting*. Its site does not always indicate the place of the new growth. The organs of special sense may be affected; the *sight* becomes impaired on one or both sides; there may be *strabismus;* and the *hearing* generally suffers more or less. The minor grades of *paralysis* are common. The length of interval between the initiatory headache, and the occurrence of the paralysis, constitutes the most characteristic mark of these intracranial tumors. *Convulsions* and *spasmodic conditions* occur in one half of all cases; and the former often assume an epileptic type. The *mind* is always more or less affected; its diseased condition generally commencing with *loss of memory*. All these symptoms are very inconstant and variable; they are also liable to alternate remissions and exacerbations, which probably are due to the occurrence of transitory congestions either of the tumor or the cerebral substance, or perhaps of both together. The course of intracranial tumors is always chronic. Friedreich never new a case to be shorter in duration than 6 weeks, or longer than 14 years.

2*d. The Special or Differential Diagnosis of Intracranial Tumors.**—(*a*) Those situated in the *cerebral hemispheres* (18) are generally accompanied by obstinate headache (14); nausea and vomiting (9); by derangements of the motory functions (14); consisting

* The numbers placed above in brackets refer to the number of cases, among those examined by Friedreich, in which the particular symptoms were present. —*Translator.*

of more or less extensive paralysis, and of convulsions which assume an epileptiform character. When hemiplegia occurs it is sometimes crossed (*gekreuzt*), and sometimes not; but it constantly occurs on the affected side. Derangements of the special senses are common (10), especially of sight (7); and intelligence is often impaired (11). In a few exceptional cases there are no headache or alterations of the motor functions.

(*b*) *Tumors of the base of the cranium in the neighborhood of the pons*, occasion the following symptoms:—(9) headache, (8) almost always frontal; impairment of vision (7), commonly also of hearing and taste (5), and in some cases (3) of smell. All these symptoms, due to loss of power of the facial nerves, occur on the same side as the tumor; but paralysis of the extremities, when it occurs, affects the opposite side of the body. *Complete* hemiplegia and paraplegia are not very common; and convulsions occur less frequently than with the former class of tumors, and are not epileptiform. An important sign of these tumors is afforded by the great multiplicity of the existing sensorial disturbances, and the tendency of the optical derangement to become bilateral. The mind is sometimes affected (5).

3*d*. *Tumors of the Pituitary Region.*—Friedreich only saw 1 case of this. There was frequent frontal headache, often with pain in the orbit; and double amaurosis. There is rarely any disturbance of the motor functions.

4*th*. *Tumors of the anterior part of the Base of the Brain.*—Two cases were examined. The symptoms resemble those just mentioned.

5*th*. *Tumors of the Peduncles of the Cerebrum and Cerebellum.*—Paralysis of the face and extremities, occurring on the side opposite to that on which the tumor was situated, was observed in 3 cases. This makes tumors thus situated resemble those of the hemispheres. Complicated derangements of the nerves of special sense and of the face (as the oculo-motor and trifacial), were seen in two cases. This, on the other hand, approximates these tumors to those of the base.

(*f*.) *Tumors of the Cerebellum* (8) had the following signs:—violent cephalalgia (7), often intermittent, and combined with vomiting (4); and situated in the occipital region (4). *Occipital* headache may be considered to be pathognomonic here, as it occurs in the case of no other intracranial tumors. Pain at the nape of the neck, increased by pressure, may exist. In one case there were no peculiar symptoms; and in none of the cases of tumors of the cerebellum were the generative functions at all affected.

(*g*.) *Tumors of complex situation.*—Correct diagnosis is here impossible.—*Beiträge zur Lehre von dem Geschwulsten innerhalb der Schädelhöhle. Würzburg*, 1853.—*Edinburgh Monthly Journal, March*, 1855.

Non-Identity of Typhus and Typhoid Fever.—Although typhus and typhoid fevers resemble each other very much in their external appearances, Professor Forget, of Strasburg, believes that they are clinically and essentially different in their nature. They are anatom-

ically different; they are not equally frequent in their occurrence; and typhoid fever may arise from many causes, quite irrespective of infection. In follicular enteritis, the typhoid condition is not constantly present, and it is usually secondary; while in typhus, the prostration and stupor attending its invasion indicate a powerful intoxicating principle, acting primarily as a poison, which is not usual at the commencement of the typhoid state. Gastro-intestinal symptoms are more constant and primitive in typhoid than in typhus fever; for in it they are occasionally found existing alone; and we very rarely see cases of follicular enteritis which do not present the rough (*saburral*), punctulated, and rosy tongue; also *gargouillement* and pain in the right iliac region, and either diarrhœa or constipation. Though other symptoms may coexist with them, they are never wholly obscured. In typhus again, especially at its outset, the tongue is frequently moist, smooth, and white; meteorism and abdominal pain are absent, and there is no derangement of the process of defecation. If we except the rosy, lenticular spots peculiar to typhoid fever, and which constitute, according to M. Forget, its most constant differential sign, there are no symptoms in general connected with either malady which are not purely accessory and inconstant. Typhoid fever is usually slow and gradual in its course, and in simple, uncomplicated cases, its evolution is in exact ratio to the development of the intestinal lesion. In typhus, on the other hand, the disease is very violent at first, and afterward becomes suddenly or alternately better or worse, and often in those cases which appear the most unfavorable, it advances rapidly and spontaneously to a favorable termination. Ataxia characterizes it more than it does typhoid fever.

As regards the treatment of the two diseases, Professor Forget says that while, in typhoid fever, this must always be adapted to the peculiarities of each particular case, special attention must be paid to the intestinal ulcerations which are present during its course, and that all those medicines should be avoided which are calculated to aggravate these lesions of the alimentary canal. There is no need for this caution in cases of pure typhus.—*Gaz. Med. de Paris.*

The Cracked-pot Sound not Always Indicative of a Cavern. By Dr. Bennett.—According to Skoda, "the cracked-pot sound is heard in the thorax, over tolerably large and superficially situated cavities which contain air, and communicate with the bronchial tubes. When the percussion is forcible, or the thoracic walls flexible, the cavity is compressed at each stroke, and a portion of air suddenly driven out of it into the bronchial tubes; this hissing murmur, caused by the escaping air, is mixed up with the ordinary percussion sound of cavities, and this compound represents the cracked-pot sound." But the observation made in the case of M'Kay, has satisfied me that occasionally distinct cracked-pot sound may be elicited over condensed lung, without any cavity whatever. In referring to an excellent paper on this subject by Dr. Markham, I find that on one occasion both he and Dr. Sibson have noticed this phenomenon, over the upper

portion of a lung which was afterward shown to be gorged with blood and serum, though still retaining some portion of air. It would seem, from what has been said by Skoda, Stokes, Walshe, as well as by Dr. Markham, that a peculiar tympanitic sound may be heard over collapsed or condensed lungs, when covered or mingled with a certain amount of air. For instance, when in cases of pleuritic exudation, air is effused into the pleura, a few hours before death, when in certain cases of pneumonia there is also emphysema, etc. In the case I have alluded to, these conditions were so far fulfilled, that the tubercular mass described was surrounded by spongy lung full of air. At all events, it must be evident that the physical conditions on which this peculiar sound depends, require more careful study, and that our ideas as to its necessary connection with a cavity, must undergo modification.—*Monthly Jour.*

Phosphorus in Paraplegia.—I have given phosphorus in seven cases of paraplegia from disease of the spinal cord, in the form of phosphuretted oil (4 gr. of phosphorus dissolved in ʒj of olive oil.) In none of these cases have I been able to satisfy myself that any improvement was occasioned. I commenced with three drops a day, which were afterward cautiously increased to ten, and in one case to fifteen drops. But these large doses soon induced violent nausea and vomiting, and, after a short suspension of the remedy, I have continued it in doses of three drops.

In the case of chronic myelitis, which took ten and fifteen drops, the phosphorus was excreted by the lungs, as the breath smelt strongly of the drug, but was not phosphorescent at night,—a phenomenon which has been seen by some physicians who have employed it. In another case, that of a delicate woman, with probably congestion of the cord, a large amount of phosphate was passed in the urine, presenting, under the microscope, beautiful feathery crystals. The dose of the oil, therapeutically, ought never to exceed five drops, and even this amount cannot be administered for any length of time without deranging the stomach.

What is Pyœmia?—Dr. Bennett remarks (*Monthly Journal*) upon a case of Multiple Abscess following Articular Rheumatism:—If by pyœmia be understood that pus, as pus, enters the blood,—in other words, that the corpuscles of that fluid mingle and circulate with those of the blood,—the idea is erroneous. Such mingling of pus cells produce no such effects as are witnessed in these cases. In leucocythemia we observe the blood to be loaded with corpuscles, which, in all their physical characters, are identical with those of pus, and yet none of the supposed obstructions in the smaller vessels, and no multiple abscesses, ever occur. Nor when healthy pus is injected into the veins of a living animal, do these results take place, as has been proved by numerous experimenters, and of which I satisfied myself by some careful experiments, performed with Professor Barlow, of the Veterinary College of this city. But if by pyœmia be

understood a morbid poison generated in pus, which, on its absorption, taints the system and leads to the secondary abscesses, then the idea seems to me to be correct. I think, however, it would be better, with Boyer, Bonnet, Darcet, and Berard, to speak rather of a purulent infection, than of a purulent absorption; for direct experiments prove that putrid pus produces the effect that healthy pus does not. Besides, we know that morbid pus of various kinds, when absorbed into the system, such as that of small-pox, glanders, syphilis, etc., not only induces the constitutional fever, but tends to the production of secondary collections of pus, whereby the poison is supposed to be eliminated. On the whole, a careful consideration of this difficult subject has led me to the conclusion that such cases as the one now recorded, are not owing to simple admixture of pus with the blood, or to phlebitis, but to the presence of a peculiar poison which contaminates the system.

Tracheotomy in Childhood.—M. Guersant remarks upon the increasing numbers in whom he is called upon to perform this operation at the Hôspital des Enfans Malades. Thus, in 1850 there were 10 operations; in 1851, 25; in 1852, 30; and in 1853, 60. M. Guersant concludes from these facts that croup is on the increase in Paris; a conclusion doubted by M. Denonvilliers, who ascribes these increasing numbers to the greater confidence of the public in the resources of surgery in such cases. As regards the success of the operation, M. Guersant remarks that out of 161 cases in which it was performed there were 36 cures; and it must be borne in mind that it was only performed as a last resource when asphyxia was considered to be imminent. The rest of the treatment was much the same as is usual in this country. M. Guersant also frequently employed cauterization of the larynx, but considers that this treatment does not deserve the credit it has attained.

M. Archambault directs attention to a peculiar phenomenon which frequently attends on recovery in those cases of croup in which tracheotomy is performed. As soon as the glottis is free from false membranes, it is observed that the infant, in swallowing, is extremely apt to be distressed by the passage of fluid matters into the larynx. This difficulty of deglutition has occurred in the practice both of M. Trousseau and of M. Guersant. The former attempts to remove it by giving only solid or semi-solid food: the latter proposes in extreme cases to pass the œsophagus-tube. M. Archambault recommends a simpler method. He removes the canula, and applies the thumb very firmly over the opening. When the child has made several respirations, and these have become regular and natural, he allows it to drink, after directing its attention to the necessity of caution. In this way drink can be taken. M. Archambault considers that this difficulty of deglutition depends on an impaired sensibility of the glottis, and a want of harmony between the act of deglutition and respiration, owing to the artificial manner in which the latter has been effected through the canula. He has not witnessed this symptom except when the respiration was notably accelerated.—*L'Union Médicale.*

Treatment of Salivary Fistula.—M. Rodolfi has devised, not a new method, but a new process for the cure of salivary fistula, which merits by its simplicity and successs precedence over all other means. A man, æt. 28, robust, was operated upon in July, 1853, for a cyst situated upon the duct of steno. Three days after the operation there was an escape of saliva from the wound. Methodical compression with compresses and bandages was resorted to, which gave rise to a painful tumor on the parotid region, and had to be discontinued. The twisted suture was then used on a silver needle; but on the fourth day the saliva again escaped. A steel spring was next used to maintain the lips of the wound in apposition; this the patient could not endure. Finally collodion was applied to the fistula, two drops being used, which remained after the evaporation of the ether like an artificial skin, and by its contraction approximated the edges of the opening, and prevented the escape of a drop of fluid. The following day an additional coating was applied, and on the eighth day the cure was completed.—*Gaz. Med.*

Tuberculous Testicle treated with the Paste of Chloride of Zinc.—By Dr. Philippeaux, of Lyons.—With the exception of cancer, it is in the different forms of surgical diseases due to a scrofulous constitution that the paste of the chloride of zinc appears to produce the most favorable results. Caustics may be employed in lesions of this nature to fulfill two distinct indications:—1, destruction of altered tissue; 2, to give to subjacent parts sufficient vitality to undergo cicatrization. This latter indication is without contradiction the most important in the local treatment of alterations of a scrofulous nature, and it is well known how difficult it is to overcome that tendency to immobility which is characteristic of these affections. The principal circumstances in which cauterization by chloride of zinc has appeared to M. Bonnet to produce good results are,—superficial tuberculous glands, old fistulous tracts, fungous ulcerations, sloughing of skin consequent upon cold abscesses, superficial caries, &c. In cases of this kind superficial cauterizations more frequently produce a sufficient degree of local reaction; but if the tissues are profoundly altered it is often necessary to act with more energy. The following observations, to which many others might be added, afford an example of the happiest results which follow cauterization in cases of this nature:—

In a young man, æt. 21, of a highly scrofulous constitution, the right testicle presented the following alterations:—its size is nearly that of the fist; it is hard, and presents at different points an indistinct fluctuation; three fistulous tracts, which have opened within two months, discharge grumous matter. The disease is of six months duration, the tumor being developed without pain. On the 12th of April, 1851, M. Bonnet commenced the treatment by introducing into the fistulous tract a bit of chloride of zinc, which gave rise to extensive sloughing. On the separation of the eschar, another application of paste was made in the cavity produced by the caustic, which extended even into the substance of the testicle.

By this second application the three points first attacked are united into one deeply-sloughing surface; it then became easy, by removal of the eschar, and successive applications of caustic, to accomplish the total destruction of the tumor. Three aplications of the caustic were still necessary, and, like the two first, gave rise to but a moderate degree of pain. The spontaneous falling of the last eschar took place April 25th; the wound resulting was completely closed on the 25th of May, the forty-third day after the first cauterization. No accident interrupted the treatment.

Paralysis of the Portio Dura from Tertiary Syphilis.—M. Roquette, a practitioner at Nantes, relates an example of this accident, the second which he has met with in the course of three years' experience of syphilitic affections. The first case was that of an old soldier, and was at once correctly interpreted. The second, however, in the person of a captain of a coasting vessel, was in the first instance treated unsuccessfully by a practitioner who, misinformed by the patient as to the venereal antecedents and accompaniments, ascribed the disease to one of its common causes, viz., cold, and treated it by local counter-irritation in front of the ear, purgatives, and leeches to the anus. The treatment of M. Roquette was by larger doses (3i per diem) of iodide of potassium, and a blister behind the ear, dressed with mercurial ointment; the cure was complete within six weeks.—*L'Union Medicale.*

Vinegar in Scabies.—Professor Le Cœur, of Caen, recommends for the cure of itch, forcible frictions of the parts affected, with a hard sponge, soaked in good vinegar, performed thrice daily so as to penetrate the skin and rupture the vesicles. He has tried this treatment with the most complete success in ten cases, the average length of the treatment being less than five days. He thinks this treatment preferable to all others on account of its speedy action—its inexpensive nature—its freedom from unpleasant odors, and its easy application. He suggests that similar results might probably be obtained by frictions with the mineral acids dissolved in water.—*Gaz. des Hop.*

Quinine in Phthisis.—Dr. Muntendam, a Dutch physician, has just published a paper to show that, from his experience in twenty-two cases, sulphate of quinine, given along with acetate of morphia, or even alone, is capable of prolonging the life of the patient in many cases of phthisis, and that it may even effect a cure in those cases in which a tubercular deposition has just commenced, especially in married women and children. He alleges that, when given continuously in small doses, it does not cause dyspnœa, diarrhœa, headache, or any disagreeable effects; and he believes that in very many, but not in all cases of phthisis, it should be ranked as one of the best remedies for the disease.—*Nederlandsch Lancet, and Gaz. des Hopit.*

PART THIRD.

AMERICAN MEDICAL RETROSPECT.

PRACTICAL MEDICINE.

On the Differential Diagnosis of Syphilitic and Non-Syphilitic Orchitis. By THOS M. MARKOE, M. D., Surgeon to N. Y. Hospital. —In order to contrast the two affections more fully, I will give the main symptoms in each, so that the data for a differential diagnosis may be compared at a glance. Thus, the—

Syphilitic form,	*Non-Syphilitic form,*
1. Begins in testicle.	1. Begins in epididymitis.
2. Smooth and regular.	2. Irregular and knobbed.
3. Hard and painless.	3. Less hard and more painful.
4. Scrotum unaffected.	4. Scrotum early adherent.
5. Both testicles involved.	5. Usually one only.
6. Hydrocele very common.	6. Hydrocele rare.
7. No suppuration or fungus.	7. Abscess or fungus common.
8. No glandular affection.	8. Glands of groin enlarged.
9. Venereal appetite gone.	9. Not ascertained.
10. Treatment successful.	10. Treatment unsatisfactory.

To complete the differential history of these two diseases, we may say that the syphilitic testicle tends finally, if not early cured, to produce atrophy of the organ; while in the chronic simple orchitis, the tendency is to the disorganization of the testicle by abscesses, sinuses, or its entire protrusion in the shape of the fungous testis. Lastly, the pathological anatomy of the syphilitic disease is found to be, according to Ricord, an effusion and partial organization of fibrine on the fibrous surfaces and compartments of the organ; while, according to Curling, there is always found in the simple chronic orchitis, an abundance of the yellow, gelatinous, unorganized material, both within and without the seminiferous tubes, which he considers as the peculiar pathological element of the disease, and which is undoubtedly fibrine in an aplastic or unorganizable condition.—*N. Y. Med. Times.*

Gastrotomy for the removal of a Leaden Bar.—By T. B. NEAL, M. D., of Iowa.—The *Medical Examiner* contains a full report of the following case:—A man, æt. twenty-seven, while intoxicated, attempted, on a wager, to swallow a leaden bar 10 inches long and ¾ of an inch thick,

weighing 1 pound. For three days after accomplishing his feat, he worked in a pork house, with but little inconvenience. On the third day he was seized with great pain in the stomach. On the fourth day he walked six miles to consult a physician. On the tenth day he labored under symptoms of gastritis, and the operation of gastrotomy was performed by Dr. Bell, of Wapello, after the administration of chloroform, by making an incision through the walls of the abdomen, from the umbilicus to the false ribs, four inches in length and two inches to the left of the median line. The peritoneum being divided, Dr. Bell introduced his hand, and pushing back the protruding intestines, found that the bar of lead was nearly perpendicular, the upper end inclining a little to the left. The bar was pushed up, until the lower end came opposite the abdominal opening. It was then seized, and an incision made in the walls of the stomach, just large enough to admit of its extraction by means of forceps. The contraction of the muscular coat of the stomach caused the incision in the organ to close perfectly and without trouble. The external wound was stitched, and a compress applied. For the ensuing three days the system of the patient was kept under the influence of opium, and nothing but mucilaginous drinks, in small quantities, allowed as diet. He recovered as well as a patient does of uncomplicated gastritis. One month after the operation he had resumed his work.

Removal of the entire Body of the Uterus by the large Abdominal Section.—By Prof. E. R. Peaslee, M.D.—In the *American Jour. of Med. Sci.* for April we find reported a case of the removal of the whole of the body of the uterus by large abdominal incision. The patient died on the fifth day after the operation, from gangrene produced by strangulation of two hernial protrusions. The operation was undertaken for the removal of an ovarian tumor, the diagnosis of which was, to all appearances, very clearly made out. The mistake in the diagnosis, which the subsequent steps of the operation showed, was most certainly not a culpable one. On examination the tumor was found to be a fibrous growth, already softening and degenerating in its central portions. "It must have originated at the right side of the fundus of the uterus, and in its substance, though near its surface. Death, which occurred on the fifth day after the operation, appears to have been produced, not from the removal of the uterus, but from the complications of two hernial protrusions,—a small one near the lower end of the incision, and a larger near the upper end—produced by coughing and retching. These hernial protrusions had occurred the morning after the operation, in the absence of Dr. P.; and when examined they were livid, and covered with plastic exudation. A portion of the sutures were removed, and they were returned. The post-mortem appearances went to show that the gangrene extended from the portion of the bowels implicated in the hernæ, and thence to the peritoneum.

Self-adjusting Stethoscope of G. P. Cammann, M. D., of New York. —The stethoscope of Dr. Cammann presents an objective end, made

of ebony, the extremity of which is about two inches in diameter, two tubes composed of gum elastic and metallic wire, two metallic tubes of German silver, two ivory knobs at the aural extremity, and a movable elastic spring, so arranged as to adjust it, and keep it in its proper position. The bell-like expansion of the objective extremity is two and a half inches in diameter, with a convolvulus excavation, gently curving outward, to present a rounded edge to the chest, in order to prevent causing pain to the patient. The bore of the instrument is two and a half lines in diameter, care being taken to have it made smooth and even. The tubes are made of German silver, with a double curve towards the aural extremities, which curves require to be constructed with great care, so that the ivory knobs may rest closely upon the external openings of the ears.* When applied, it is necessary that the orifices of the knobs should point upward. Some of the instruments are constructed with a spiral, and others with an elastic spring, as shown by the plate. Some of them are so arranged that they can be disjointed, to render them more portable.

One point, heretofore *sub judice*, is settled by this instrument, viz., that the sound is conducted entirely through the air, and not at all through the media, as these were, for experiment's sake, changed nine or more times, without affecting in the least the intensity of the conducted sound. On making the objective end solid, all sound was lost.

The advantages claimed for the instrument of Dr. Cammann, are:—

1. That being applied, it adjusts itself closely to both ears, excluding all external sound.

2. It leaves both hands of the examiner free.

3. It gives sounds pure, and greatly increased in intensity, though differing in quality from those hitherto afforded by auscultation, the pitch being lower. This intensity is produced by both ears being acted upon at once, by the ear-pieces of the instrument fitting closely into the meatus of both ears, and by the smoothness and careful construction of the bore of the stethoscope as to curves, etc., according to the law of reflected sound.

4. Sounds not heard through the instrument in common use can be detected by this.

5. Sounds which are doubtful by ordinary instruments are made perfectly certain. Even when disease is seated in the central part of the lungs, they can be detected, when the ordinary stethoscope will fail to render them recognizable. The same advantages are obtained in examining the morbid sounds of the heart.

The great increase of intensity of sound by this instrument renders it valuable to those with impaired hearing.

In the use of this stethoscope it is necessary that the chest should be uncovered, to prevent all friction between it and the clothes; otherwise the sound thus generated is conducted with such intensity as to embarrass the examiner. A short practice may be required to become

* If any peculiarity of formation of the head of the observer prevents their thus resting, so as to exclude all external sounds, they should be carefully bent to give the required curve.

familiar with it, in consequence of the increased intensity of the sounds produced by it, and the difference between them and those afforded by ordinary auscultation. Many of the recognized physical signs of thoracic disease will be so modified as to be new to the examiner, but a short experience will enable him to appreciate them, and give them their true value.—*N. Y. Med. Times.*

Paste of Allium Cepa as a Remedy for Epistaxis.–B. Rorer, M. D., of Germantown, has favored us with a communication in which he extols the efficacy of a paste made of the *allium cepa* in arresting atonic hemorrhage from the Schneiderian membrane.

The directions for making the paste are as follows:—

"Take the inner portions of the bulb of the *A. cepa*, or common onion, cut it fine, mix it with an equal portion of flour or bread crumbs, adding a sufficient quantity of strong vinegar to make a consistent paste." This paste is applied by pressing it into the nostril with the ball of the thumb till no more can be introduced, when the plug is to be secured by a bandage. Several cases are detailed illustrative of its efficacy, one of which we shall quote.

G. F., aged 44 years, a baker, was attacked, March 6th, 1847, with epistaxis without any premonition, while attending to his heated oven, and had lost, he stated, ten or twelve ounces of blood before Dr. Rorer saw him. Dr. R. had him placed in a cool room, washed his face and head with iced water, and injected the same into his nares, and afterwards solutions of alum and of the metallic salts. Alum and finely-powdered galls were then applied by means of a quill, and lastly plugging with lint wet with astringent solutions resorted to. At the same time twenty drops of muriated tincture of iron were given every two hours,—all without any avail. At this time a German named Seibert advised the onion paste, which was used with the effect of completely arresting the hemorrhage.—*American Jour. of Med. Sci.*

Consumption Hospital.—At the recent session of our State Legislature, a bill was passed chartering a Hospital for Consumption, in this city. Amongst the names of the trustees we notice some of our most influential citizens and distinguished physicians. This is an institution greatly needed in this community. We trust that measures will at once be taken to carry out the provisions of the charter. The passage of the bill was mainly due to the efforts of Hon. Geo. W. Bradford, a distinguished physician, and senator from the Cortland district.

☞ *Notice to Readers and Correspondents.* The unusual length of the Original Communications in this Number has crowded out the review promised, as also several communications, bibliographical notices, our usual variety of Foreign and American Selections, several editorial notices, etc.

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